Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 4, 2020

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification for AT&T - 841294**
230 Guinea Road, Monroe, CT 06468
Latitude: 41° 20′ 30.68″ / Longitude: -73° 16′ 28.28″

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 230-foot mount on the existing 240-foot Self-Support Tower, located at 230 Guinea Road, Monroe, CT. The property is owned by the Town of Monroe and the Tower is owned by Crown Castle. AT&T now intends to remove and replace three (3) existing antennas with six (6) new antennas. The new antennas will be installed at the 230-ft level of the tower. AT&T is also proposing tower mount modifications as shown on the enclosed Mount Analysis.

The facility was approved by the Connecticut Siting Council in Docket No. 114 on January 16, 1990. The approval was given with conditions which this exempt modification follows.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ken Kellogg, First Selectman for the Town of Monroe, as both the municipality and property owner, Rick Schultz, Town Planner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:

Ken Kellogg, First Selectman (*via email only to kkellogg@monroect.org*)
Monroe Town Hall
7 Fan Hill Road
Monroe, CT 06468

Rick Schultz, Town Planner (*via email only to rschultz@monroect.org*)
Monroe Town Hall
7 Fan Hill Road
Monroe, CT 06468

Crown Castle, Tower Owner

From: Zsamba, Anne Marie
To: "rschultz@monroect.org"
Subject: Notice of Exempt Modification - AT&T - 230 Guinea Road, Monroe - 841294
Date: Tuesday, August 4, 2020 11:50:00 AM
Attachments: EM-AT&T-230 GUINEA RD MONROE-841294.pdf

Dear Town Planner Schultz:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today Tuesday, August 4, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

From: Zsamba, Anne Marie
To: "kkellogg@monroect.org"
Subject: Notice of Exempt Modification - AT&T - 230 Guinea Road, Monroe - 841294
Date: Tuesday, August 4, 2020 11:50:00 AM
Attachments: EM-AT&T-230 GUINEA RD MONROE-841294.pdf

Dear First Selectman Kellogg:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today Tuesday, August 4, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

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T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

Exhibit A

Original Facility Approval

DOCKET NO. 114 - An application of SNET Cellular, Inc., for a Certificate of Environmental Compatibility and Public Need for a cellular telephone tower and associated equipment in the Town of Monroe, Connecticut.	:	Connecticut Siting Council January 16, 1990

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular telephone facility at the proposed Monroe site, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to SNET Cellular, Inc. (SNET), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building at the proposed site in Monroe, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. All SNET cellular antennas shall extend no higher than 252 feet above ground level (AGL). If the Town of Monroe and SNET reach an agreement to place the Town of Monroe's antennas for public radio station WMNR on the tower, then the tower shall be no higher than 260 feet AGL for the attachment of such town antennas; otherwise the tower shall be no higher than 240 feet AGL. Prior to the raising of the tower from 240 feet AGL to 260 feet AGL, notice of such sharing and raising of the tower shall be provided to the Council.

2. The facility shall be constructed in accordance with the State of Connecticut Basic Building Code.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall include detailed plans for site preparation including a profile and cross-section of the proposed access road, placement of the proposed tower and equipment building within the leased parcel, and erosion and sedimentation control.

4. The Certificate Holder shall comply with any future radio frequency (RF) standard, promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

5. The Certificate Holder or its successor shall provide the Council a recalculated report of power density if and when additional channels over the proposed 45 channels, higher wattage over the proposed 100 watts per channel, or other circumstances in operation cause a change in power density above the levels originally calculated in the application.

6. The Certificate Holder or its successor shall permit public or private entities to share space on the proposed Monroe tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. If this facility does not initially provide, or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years after the completion of any appeal from this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below. A notice of issuance shall be published in the Bridgeport Post and the Monroe Courier.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

SNET Cellular, Inc. (Applicant)
227 Church Street
New Haven, CT 06506

Peter J. Tyrrell (Its Representative)
SNET Cellular, Inc.
Room 1021
227 Church Street
New Haven, CT 06506

Metro Mobile CTS of (Intervenor)
Fairfield County, Inc.

Micheal W. Riley (Its Representatives)
Vice-President North East Region
Metro Mobile CTS, Inc.
110 East 59th Street
New York, New York 10022

Philip Mayberry, General Manager
David S. Malko
Metro Mobile CTS of
Fairfield County, Inc.
50 Rockland Road
South Norwalk, Connecticut 06854

Paul M. Hancock, General Partner (Party)
Housatonic Cable Vision Company
2 East Street
P.O. Box 1540
New Milford, Connecticut 06766

Howard L. Slater, Esq. (Its Representative)
Bryne, Slater, Sandler,
Shulman, & Rouse, P.C.
330 Main Street
P.O. Box 3216
Hartford, Connecticut 06103
Attn: Jennifer Young Gaudet, Esq.

3945E-8-10

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket 114 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 16 day of January, 1990.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Harry E. Covey	Yes
Mortimer A. Gelston	Yes
Daniel P. Lynch, Jr.	Absent
Paulann H. Sheets	Absent
William H. Smith	Absent
Colin C. Tait	Absent

Exhibit B

Property Card

230 GUINEA RD

Location	230 GUINEA RD	**Map/Lot**	081/ 008/ 00/ /
Acct#	08100800	**Owner**	MONROE TOWN OF (OPEN SPACE)
Assessment	$16,400	**Appraisal**	$23,400
PID	11950	**Building Count**	1
Survey	1814 C	**Affordable**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$23,400	$23,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$16,400	$16,400

Owner of Record

Owner	MONROE TOWN OF (OPEN SPACE)	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	7 FAN HILL RD MONROE, CT 06468-1800	**Book & Page**	297/ 119
		Sale Date	10/30/1985
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
MONROE TOWN OF (OPEN SPACE)	$0	1	297/ 119		10/30/1985

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes

Field	Description
Style	Vacant Land
Model	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Wdstv Flues	
Basement Gar.	
Attic	
Basement	
In Law Apt	

Building Photo

(http://images.vgsi.com/photos/MonroeCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/MonroeCTPhotos//Sketches/11950_11950.j

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	903
Description	Municipal
Zone	RF2

Land Line Valuation

Size (Acres)	3.02
Appraised Value	$23,400

Neighborhood	Stepney
Alt Land Approved	No
Category	

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$23,400	$23,400
2019	$0	$23,400	$23,400
2018	$0	$24,200	$24,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$16,400	$16,400
2019	$0	$16,400	$16,400
2018	$0	$16,900	$16,900

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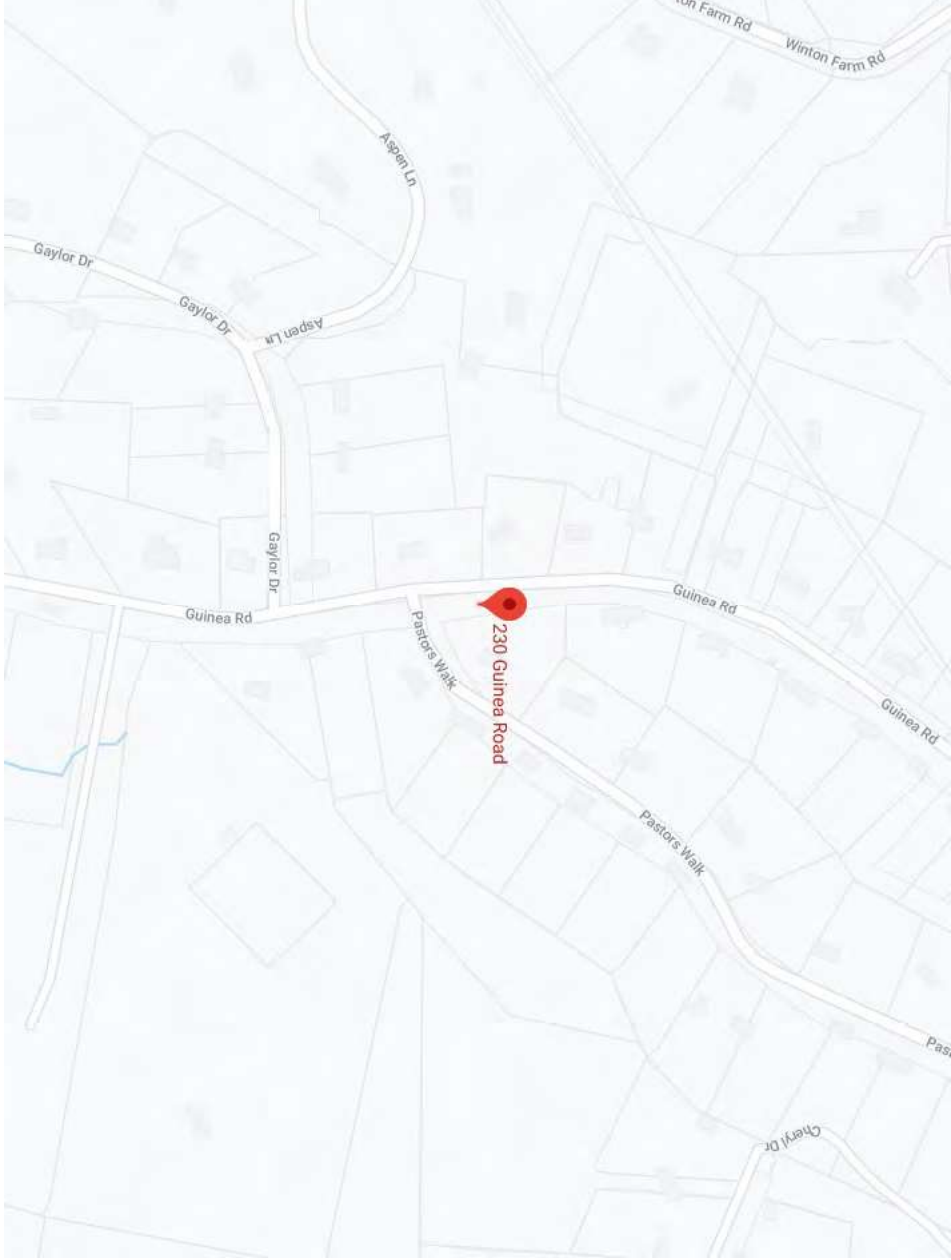

Winton Farm Rd
Aspen Ln
Gaylor Dr
Gaylor Dr
Aspen Ln
Gaylor Dr
Guinea Rd
Guinea Rd
Pastors Walk
230 Guinea Road
Guinea Rd
Pastors Walk

Exhibit C

Construction Drawings

AT&T SITE NUMBER:	**CTL02144**
AT&T SITE NAME:	**MONROE-GUINEA ROAD**
AT&T FA CODE:	**10035068**
AT&T PACE NUMBER:	**MRCTB047199, MRCTB047301, MRCTB047183,**
AT&T PTN NUMBER:	**2051A0VCW3, 2051A0VALK, 2051A0VBES**
BUSINESS UNIT #:	**841294**
SITE ADDRESS:	**230 GUINEA ROAD MONROE, CT 06468**
COUNTY:	**FAIRFIELD COUNTY**
TOWER HEIGHT:	**240'**
SITE TYPE:	**SELF SUPPORT**

PROJECT: AT&T 3C & 5G NR

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	MONROE-GUINEA ROAD
SITE ADDRESS:	230 GUINEA ROAD MONROE, CT 06468
COUNTY:	FAIRFIELD COUNTY
MAP/PARCEL #:	NOT PROVIDED
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.3418531
LONGITUDE:	-73.2745269
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	588'
CURRENT ZONING:	RF2
JURISDICTION:	FAIRFIELD COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	SOUTHWESTERN BELL 754 PEACHTREE ST NE 16TH FLR ATLANTA, GA 30308
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 7900 XERXES AVE S BLOOMINGTON, MN 55431
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S BOULDER AVE, SUITE 300 TULSA, OK 74119 MOAKES@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277
	NOT PROVIDED
	NOT PROVIDED

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-1.1	EQUIPMENT PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL ANTENNA & FEEDLINE SCHEDULE
C-4	EQUIPMENT DETAILS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24x36. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK

- MODIFY SECTOR MOUNTS PER RECOMMENDATIONS IN MOUNT ANALYSIS REPORT BY POWER OF DESIGN GROUP DATED 5/28/20
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (3) ERICSSON - RRUS-11 B12 RRHS
- REMOVE (6) POWERWAVE - LGP 21901 DIPLEXERS
- REMOVE (3) POWERWAVE - TT19-08BP111-001 TMAS
- INSTALL (3) CCI - DMP65R-BU6DA ANTENNAS
- INSTALL (3) CCI - OPA65R-BU6DA ANTENNAS
- INSTALL (3) ERICSSON - 4449 B5/B12 RRHS
- INSTALL (3) ERICSSON - 4478 B14 RRHS
- INSTALL (1) RAYCAP - DC6-48-60-0-8F SQUID

GROUND SCOPE OF WORK

- REMOVE (1) GALAXY 24 VOLT POWER PLANT & BATTERIES
- INSTALL (1) NETSURE POWER PLANT WITH (3) STRINGS OF BATTERIES
- INSTALL (1) RAYCAP DC12-48-60-25E
- INSTALL (9) UP CONVERTERS (MOUNTING KIT, eSURE POWER EXTEND CONVERTER, 26-POSITION PANEL, NETSURE 7100 # 565459)
- INSTALL (2) ROSENBERGER LEONI - WR-VG86ST-BRD

LOCATION MAP

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

TAKE TERMINAL RD TO BRADLEY FIELD CONNECTOR CT-20. TAKE RAMP ONTO I-91. AT EXIT 32A-32B TAKE RAMP ONTO I-84 [US-6]. AT EXIT 11 TURN RIGHT ONTO MILE HILL RD [WASSERMAN WAY]. TURN RIGHT ONTO CT-34 [BERKSHIRE RD]. KEEP RIGHT ONTO TODDY HILL RD. ROAD NAME CHANGES TO BOTSFORD HILL RD. TURN LEFT ONTO CT-25 [S MAIN ST]. TURN RIGHT ONTO BEAR HILLS RD. TURN LEFT ONTO PINE TREE HILL RD. ROAD NAME CHANGES TO GUINEA RD. ARRIVE AT 230 GUINEA RD, MONROE, CT 06468.

SITE PHOTO

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	GPD ENGINEERING
DATED:	6/4/20
MOUNT ANALYSIS:	POWER OF DESIGN
DATED:	5/28/20
RFDS REVISION:	2
DATED:	5/27/20
ORDER ID:	517061
REVISION:	0

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM CALL 2 WORKING DAYS BEFORE YOU DIG

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL02144**

BU #: **841294**
MONROE-GUINEA ROAD

230 GUINEA ROAD
MONROE, CT 06468

EXISTING
240' SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/20	JJD	PRELIMINARY REVIEW	MJP
B	7/27/20	MLC	PRELIMINARY REVIEW	WPP
0	8/3/20	MLC	CONSTRUCTION	RMC

8/5/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
T-1	0

143764.001_Monroe-Guinea Road_841294_CDs.dwg – Sheet:T-1 – User: rcarson – Aug 03, 2020 – 4:40pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER 40 ksi
   #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER 2"
   #5 BARS AND SMALLER 1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS 3/4"
   BEAMS AND COLUMNS 1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL02144**

BU #: **841294**
MONROE-GUINEA ROAD

230 GUINEA ROAD
MONROE, CT 06468

EXISTING
240' SELF SUPPORT

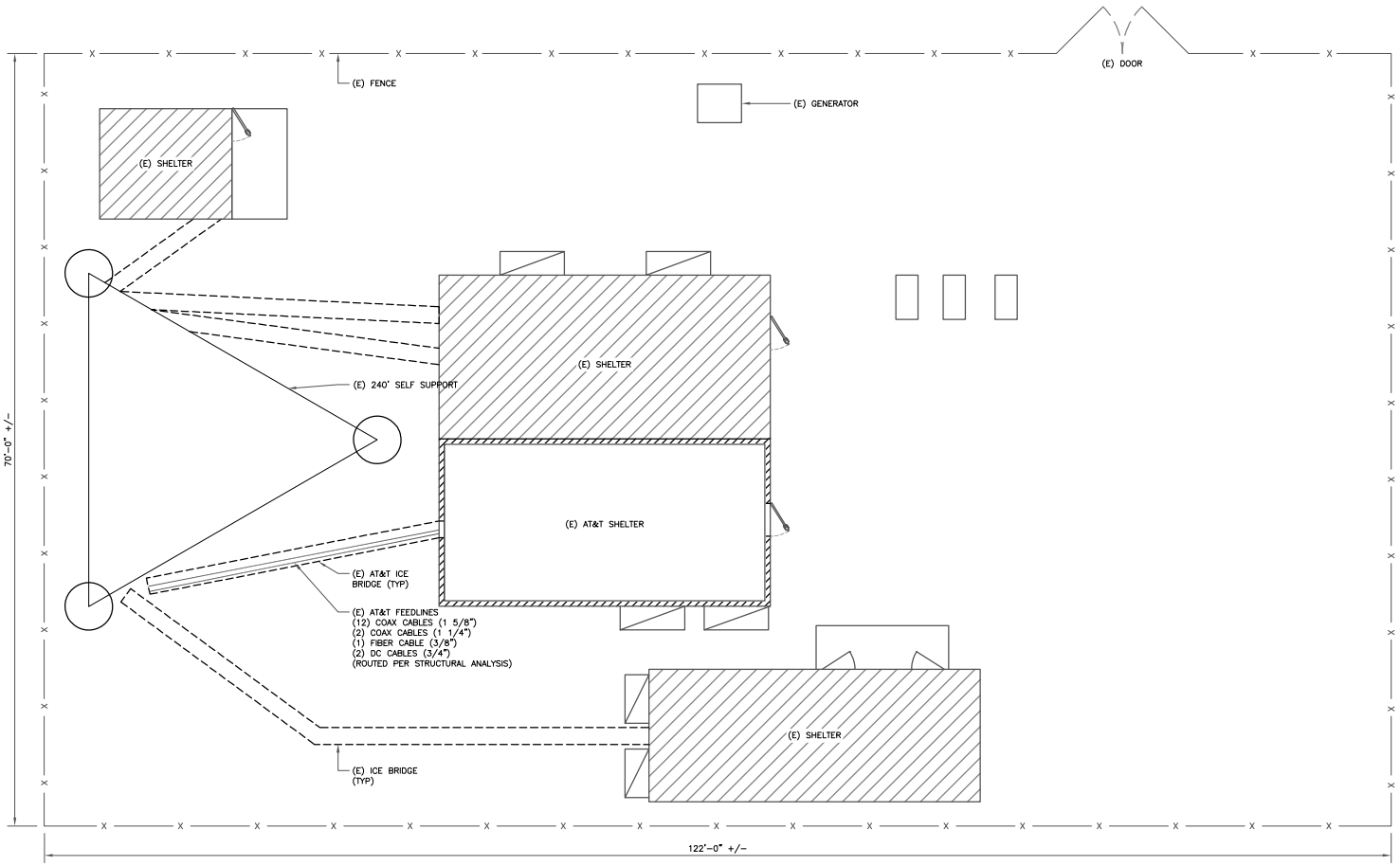
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/20	JJD	PRELIMINARY REVIEW	MJP
B	7/27/20	MLC	PRELIMINARY REVIEW	FWP
0	8/3/20	MLC	CONSTRUCTION	RMC

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: **T-2**
REVISION: **0**



1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

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MONROE-GUINEA ROAD

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EXISTING
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8/3/20

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PEC.0001564
Expires 2/10/21

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SHEET NUMBER:	REVISION:
C-1	0

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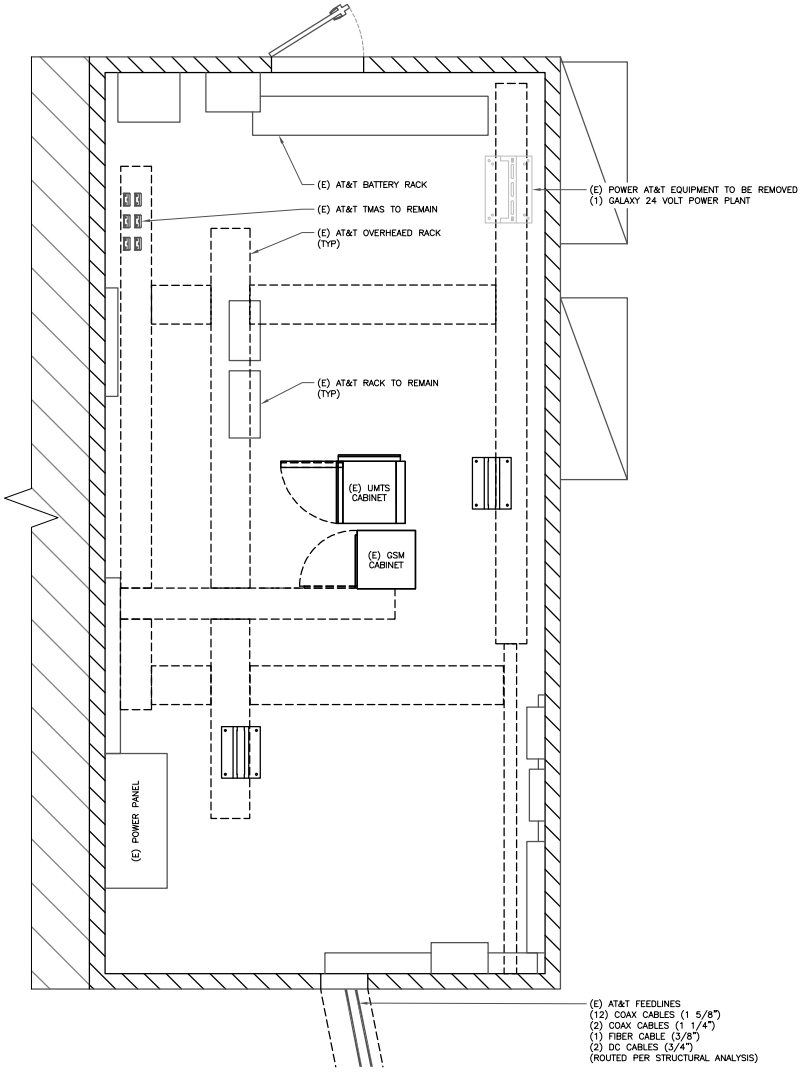
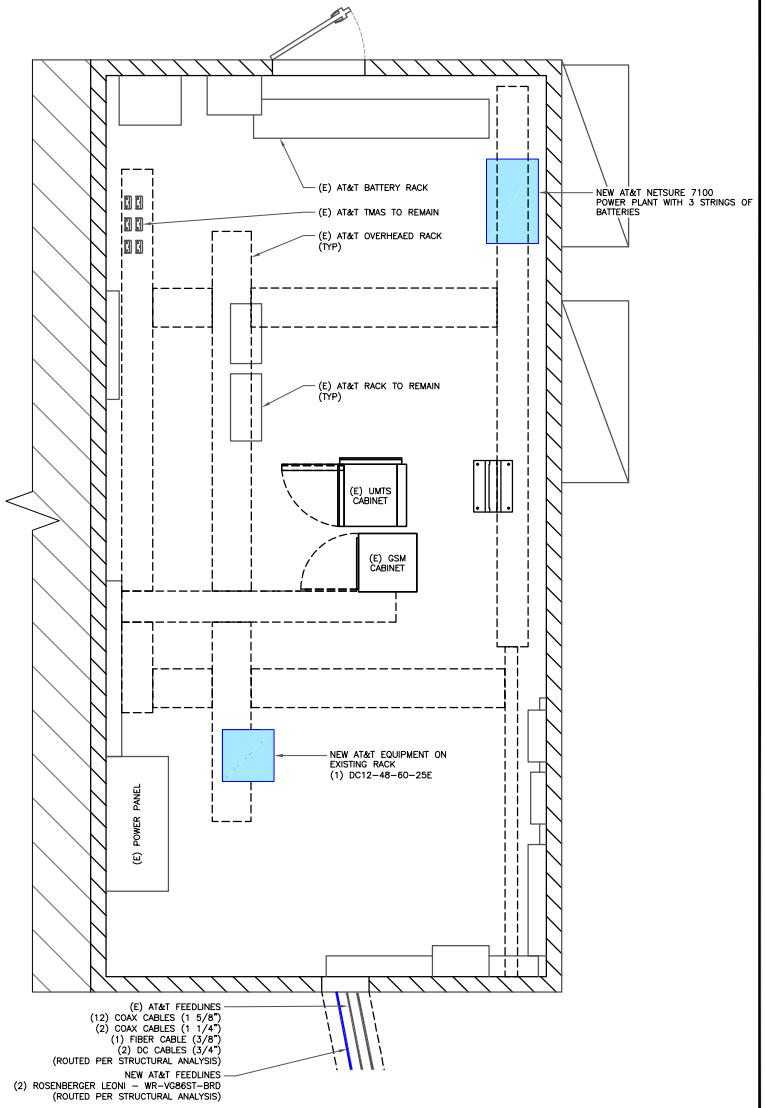


1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)



1 PROPOSED SITE PLAN
SCALE:

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL02144**

BU #: **841294**
MONROE-GUINEA ROAD

230 GUINEA ROAD
MONROE, CT 06468

EXISTING
240' SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/20	JJD	PRELIMINARY REVIEW	MJP
B	7/27/20	MLC	PRELIMINARY REVIEW	WWP
0	8/3/20	MLC	CONSTRUCTION	RMC

8/3/20

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PEC.0001564
Expires 2/10/21

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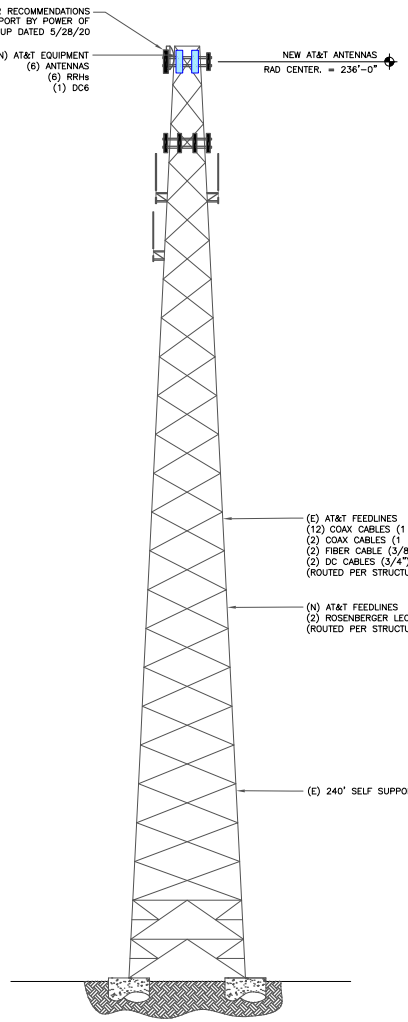
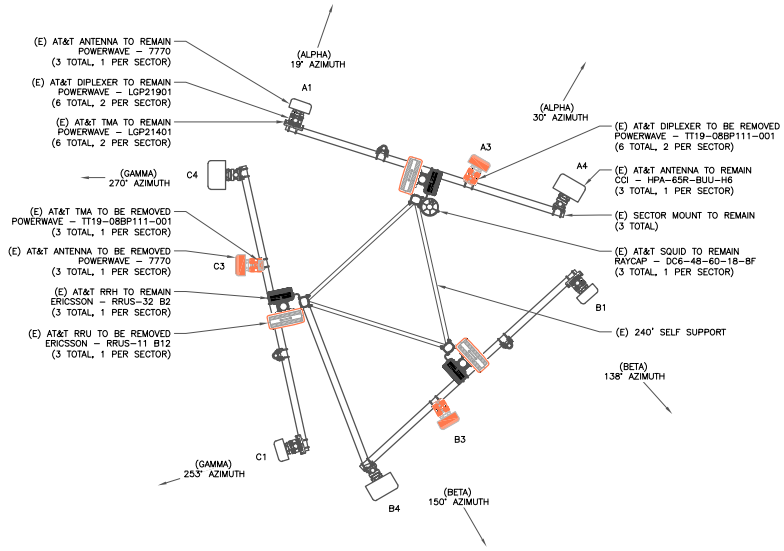
SHEET NUMBER:	REVISION:
C-1.1	0

143764.001_Monroe-Guinea Road_841294_CDs.dwg – Sheet:C-1.1 – User: rcarson – Aug 03, 2020 – 4:40pm

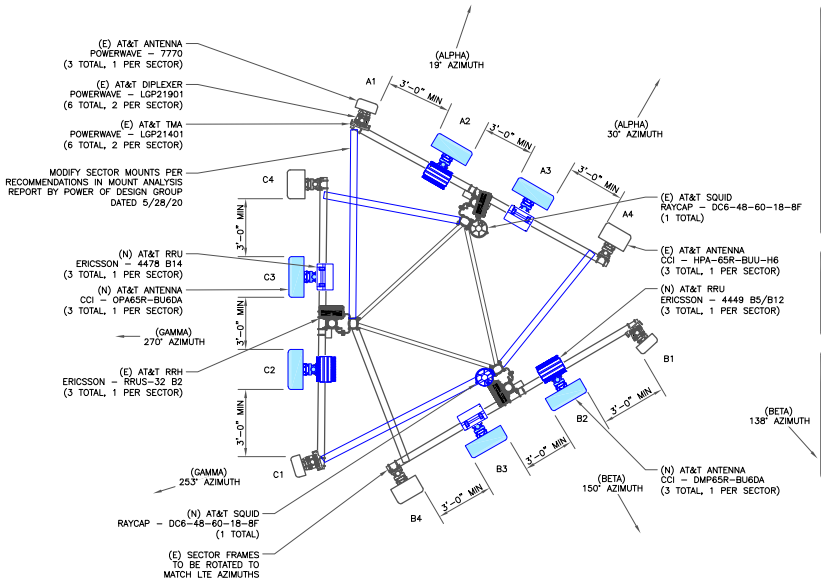


1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE

N



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

N

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.

MOUNT ANALYSIS NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

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C-2	0

1437764.001_Monroe-Guinea Road_841294_C0s.dwg – Sheet:C-2 – User: rcarlson – Aug 03, 2020 – 4:40pm

FINAL ANTENNA AND FEEDLINE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	UMTS 850	EXISTING	19°	POWERWAVE 7770	236'-0"	0°	4°	1 5/8"	260'-0"	2	(2) LGP 21401	DC6-48-60-18-8F	(1) 3/8" FIBER (2) 1/2" DC (12) COAX	–	TOWER	Y	N	Y
A2	LTE 700/ LTE 850/5G	NEW	30°	CCI DMP65R-BU6DA	236'-0"	0°	2°/2°/2°	–	–	–	–			(1) 4449 B5/B12	TOWER	N	N	N
A3	LTE 700	NEW	30°	CCI OPA65R-BU6DA	236'-0"	0°	2°	–	–	–	–			(1) 4478 B14	TOWER	N	N	N
A4	LTE 1900	EXISTING	30°	CCI HPA-65R-BUU-H6	236'-0"	0°	3°/3°	1 5/8"	–	2	–			(1) RRUS-32 B2	TOWER	N	N	N
BETA SECTOR																		
B1	UMTS 850	EXISTING	138°	POWERWAVE 7770	236'-0"	0°	4°	1 5/8"	260'-0"	2	(2) LGP 21401	DC6-48-60-0-8F	(2) 1/2" DC	–	TOWER	Y	N	Y
B2	LTE 700/ LTE 850/5G	NEW	150°	CCI DMP65R-BU6DA	236'-0"	0°	2°/2°/2°	–	–	–	–			(1) 4449 B5/B12	TOWER	N	N	N
B3	LTE 700	NEW	150°	CCI OPA65R-BU6DA	236'-0"	0°	2°	–	–	–	–			(1) 4478 B14	TOWER	N	N	N
B4	LTE 1900	EXISTING	150°	CCI HPA-65R-BUU-H6	236'-0"	0°	4°/4°	1 5/8"	–	2	–			(1) RRUS-32 B2	TOWER	N	N	N
GAMMA SECTOR																		
C1	UMTS 850	EXISTING	253°	POWERWAVE 7770	236'-0"	0°	2°	1 5/8"	260'-0"	2	(2) LGP 21401	–	–	–	TOWER	Y	N	Y
C2	LTE 700/ LTE 850/5G	NEW	270°	CCI DMP65R-BU6DA	236'-0"	0°	0°/0°/0°	–	–	–	–			(1) 4449 B5/B12	TOWER	N	N	N
C3	LTE 700	NEW	270°	CCI OPA65R-BU6DA	236'-0"	0°	4°	–	–	–	–			(1) 4478 B14	TOWER	N	N	N
C4	LTE 1900	EXISTING	270°	CCI HPA-65R-BUU-H6	236'-0"	0°	2°/2°	1 5/8"	–	2	–			(1) RRUS-32 B2	TOWER	N	N	N

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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C-3	0

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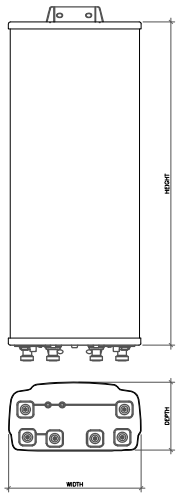
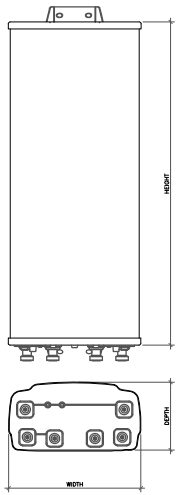


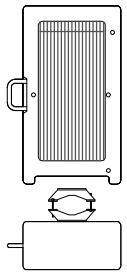
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DMP65R-BU6DA	71"	20.7"	7.7"	79.4 lbs

1 CCI – DMP65R-BU6DA
SCALE: NOT TO SCALE



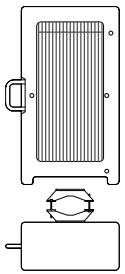
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU6DA	71"	21"	7.8"	60.2 lbs

2 CCI – OPA65R-BU6DA
SCALE: NOT TO SCALE



ERICSSON – 4478 B14
WEIGHT (FULLY EQUIPPED): 59.4 LBS
SIZE (HxWxD): 18.1x13.4x8.26 IN.

3 ERICSSON – 4478 B14
SCALE: NOT TO SCALE

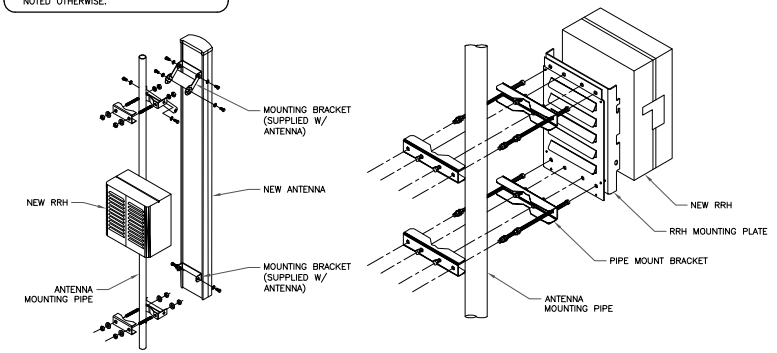


ERICSSON – 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 75 LBS
SIZE (HxWxD): 15x13.2x10.4 IN.

4 ERICSSON – 4449 B5/B12
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



5 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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C-4	0

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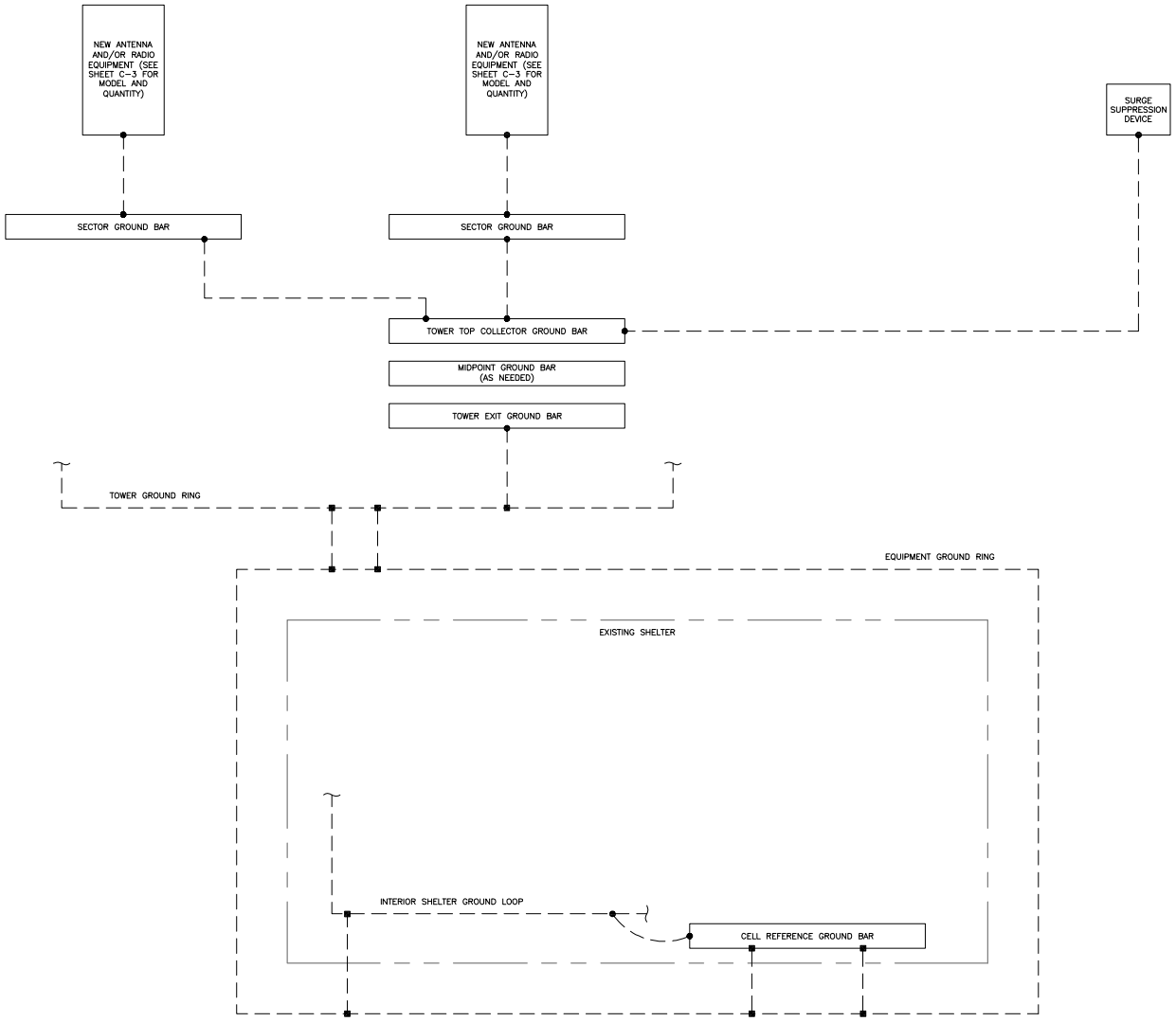

1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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G-1	0

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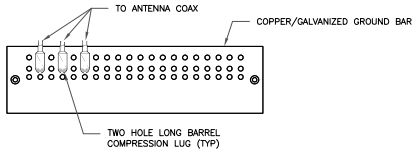
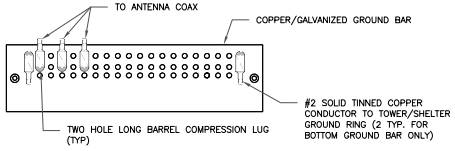


NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

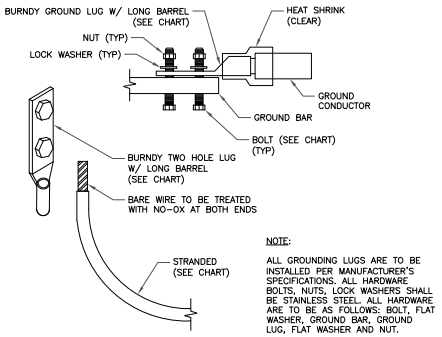


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

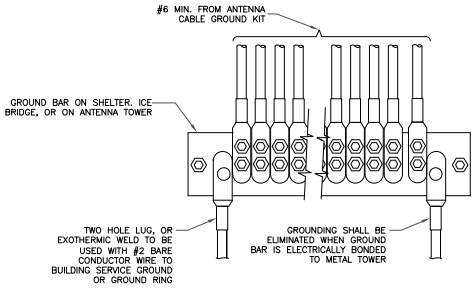
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT

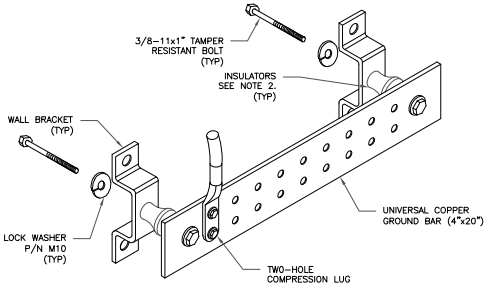


NOTE:
ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



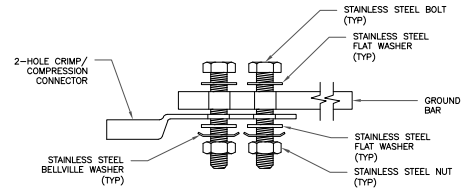
4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



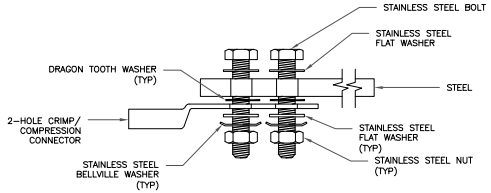
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

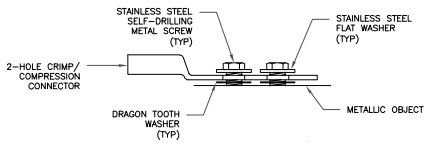
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

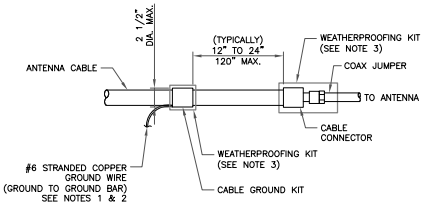


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

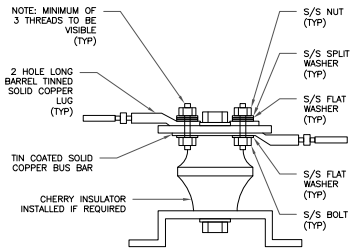
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

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AT&T SITE NUMBER: **CTL02144**

BU #: **841294**
MONROE-GUINEA ROAD

230 GUINEA ROAD
MONROE, CT 06468

EXISTING
240' SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/20	JJD	PRELIMINARY REVIEW	MJP
B	7/27/20	MLC	PRELIMINARY REVIEW	MJP
0	8/3/20	MLC	CONSTRUCTION	RMC

8/3/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
G-2	0

143764.001_Monroe-Guinea Road_841294_CDs.dwg — Sheet:G-2 — User: rcarlson — Aug 03, 2020 — 4:40pm

Diagram - Sector	A	Diagram File Name - CT2144_A_B_C_LTE700BC_850_5G_700B14__Rev2.vsd							
Atoll Site Name -	CTL02144	Location Name -	MONROE-GUINEA ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND		
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson									

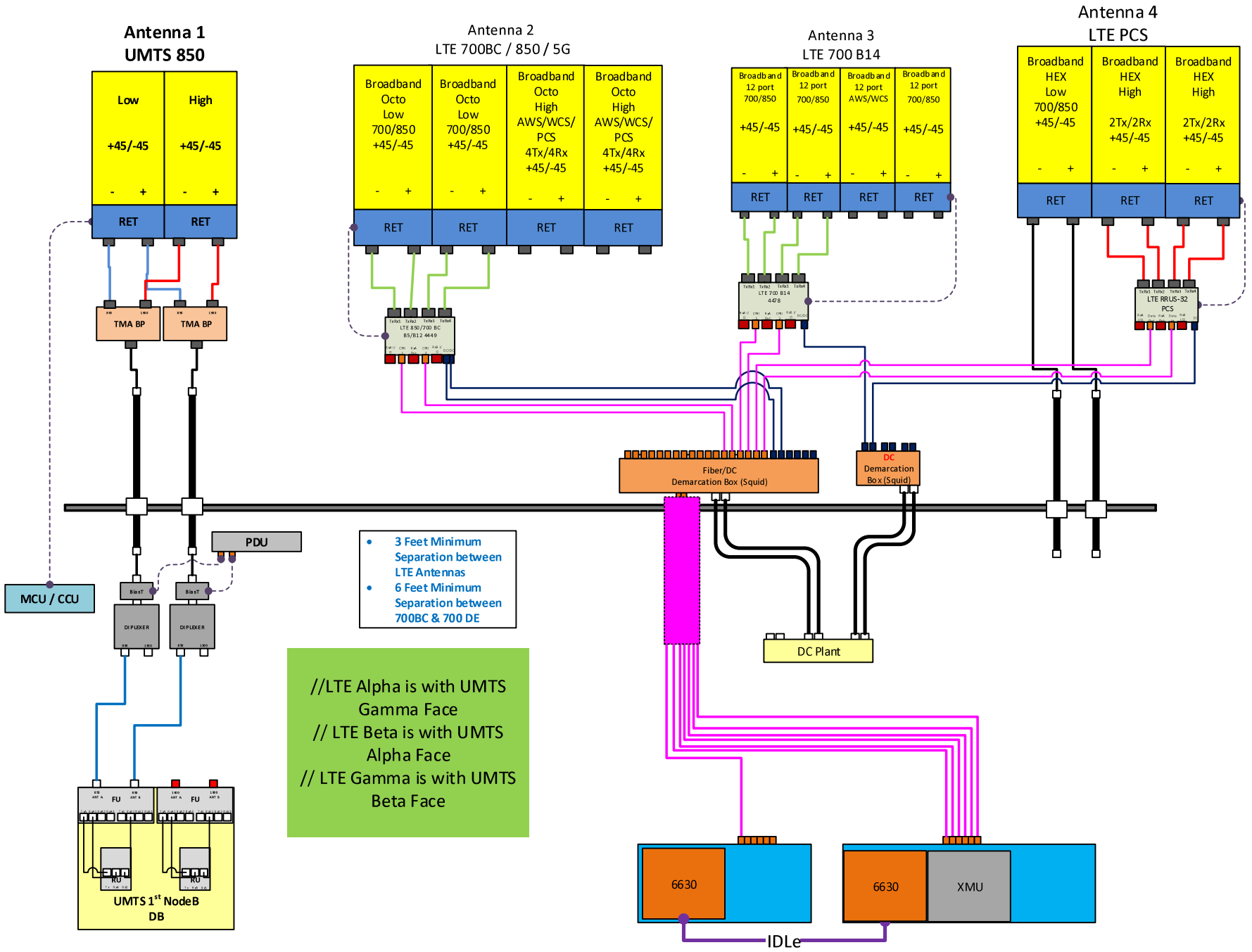


Diagram - Sector	B	Diagram File Name - CT2144_A_B_C_LTE700BC_850_5G_700B14__Rev2.vsd					
Atoll Site Name -	CTL02144	Location Name -	MONROE-GUINEA ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

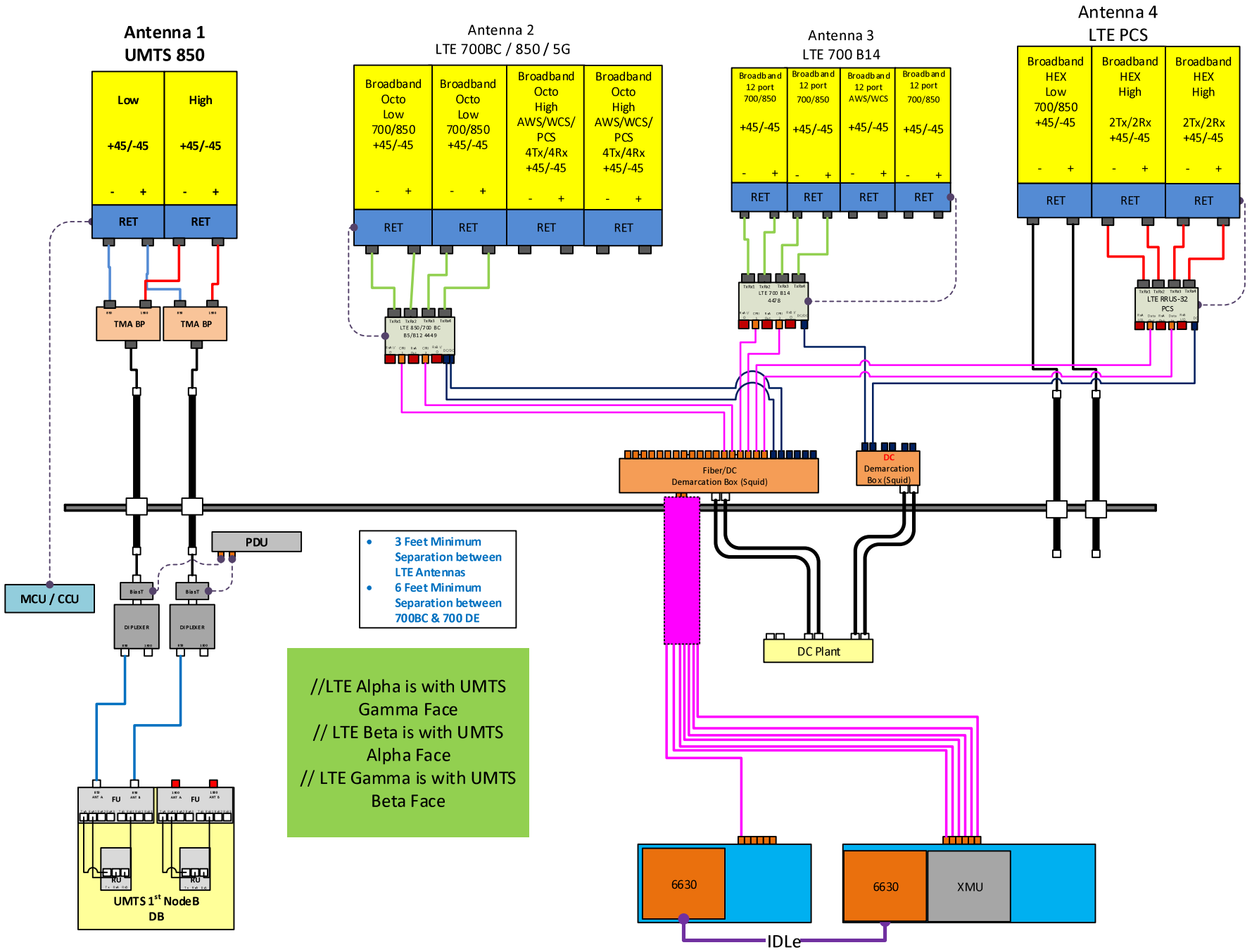


Diagram - Sector	C	Diagram File Name - CT2144_A_B_C_LTE700BC_850_5G_700B14__Rev2.vsd					
Atoll Site Name -	CTL02144	Location Name -	MONROE-GUINEA ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

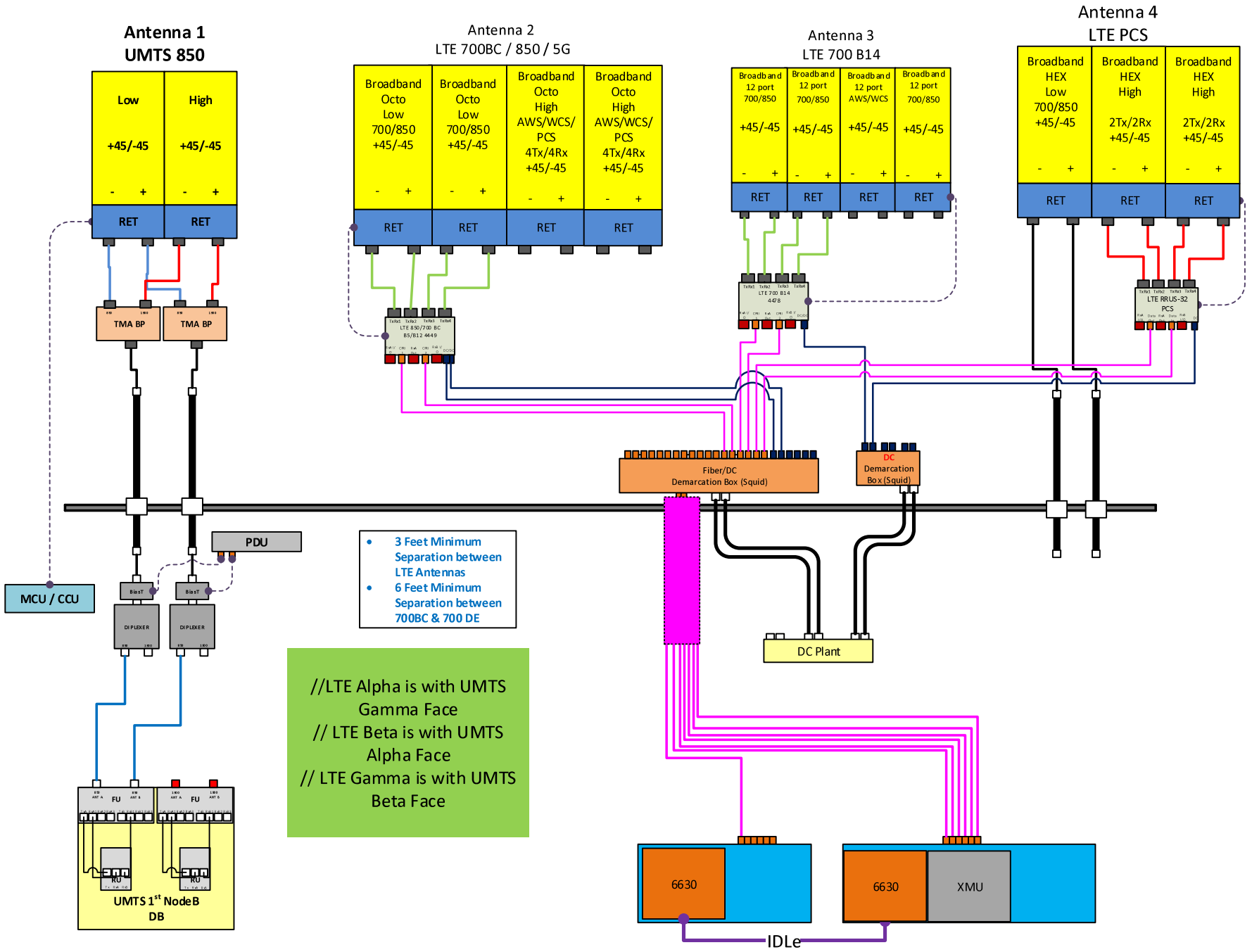


Exhibit D

Structural Analysis Report

Date: **June 4, 2020**

GPD Engineering and Architecture
Professional Corporation

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

520 South Main Street Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility Co* Co-Locate**	
	Carrier Site Name:	CTL02144
	Carrier Site Number:	60427
Crown Castle Designation:	**Crown Castle BU Number:**	841294
	Crown Castle Site Name:	MONROE-GUINEA ROAD
	Crown Castle JDE Job Number:	605386
	Crown Castle Work Order Number:	1856333
	Crown Castle Order Number:	517061 Rev. 0
Engineering Firm Designation:	**GPD Project Number:**	2020777.841294.15
Site Data:	**230 Guinea Road, Monroe, CT 06468, Fairfield County**	
	Latitude *41° 20' 30.68"*, Longitude *-73° 16' 30.68"*	
	242.917 Foot – Modified Rohn Self Support Tower	

Dear Denice Nicholson,

We are pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 75.7%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Matt Steward

Respectfully submitted by:

Christopher J. Scheks, P.E.
Connecticut #: 0030026

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 0030026
LICENSED
PROFESSIONAL ENGINEER

6/4/2020

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 242.9 ft self-support tower designed by Rohn in June of 1990.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
230.0	232.0	3	CCI Antennas	HPA-65R-BUU-H6	1 4 12	3/8 3/4 1-5/8
	230.0	3	CCI Antennas	DMP65R-BU8D		
		3	CCI Antennas	OPA65R-BU6D		
		3	Powerwave Technologies	7770.00		
		3	Ericsson	RADIO 4449 B5/12		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4478 B14		
		6	Powerwave Technologies	LGP13519		
		2	Raycap	DC6-48-60-18-8F		
		3		12.5 ft Frame Mount		
		2		8' STD P2 pipe		
201.0	207.0	2	Kathrein	OG-4	2	1-1/4
	201.0	2	-	Side Arm Mount [SO 306-1]		

Elevations have been taken from the bottom of the tower steel, which is 2.0' above ground level

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
240.0	242.0	1	Decibel	DB806-XC	9	1/2
		1	Kathrein	FMO		
	240.0	2	Commscope	USX6-6W-6GR		
		4	SAF	FREEMILE 24 GHZ FODU		
		1	-	Side Arm Mount [SO 303-3]		
215.0	218.0	6	Commscope	JAHH-65B-R3B	19	1-5/8
		3	Andrew	HBXX-6517DS-A2M		
		3	Andrew	LNX-8514DS-A1M		
		3	Alcatel Lucent	RRH2X60-700		
		3	Alcatel Lucent	B66A RRH4X45		
	215.0	1	-	Sector Mount [SM 503-3]		
	212.0	2	RFS/Celwave	DB-T1-6Z-8AB-0Z		
186.0	188.0	1	Andrew	DB589-A	2	7/8
	186.0	1	-	Side Arm Mount [SO 301-1]	1	1/2
	184.0	1	Andrew	DB589-A		
12.0	12.0	1	Kathrein	TY-840	1	1/2

Elevations have been taken from the bottom of the tower steel, which is 2.0' above ground level

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Drawings	Rohn File #: 25692, dated: 07/05/1990	4841385	CCISITES
Foundation Investigation	GPD Project #: 2015777.841294.06, dated 06/11/2015	4468667	CCISITES
Geotechnical Report	WEI Project #: 2009-901, dated 09/16/2009	4468666	CCISITES
Boring Log Review	GPD Project #: 2015777.841294.07, dated 06/17/2015	5751301	CCISITES
Modification Design	GPD Project #: 2009268.80 Rev. A, dated 10/12/2009	4601540	CCISITES
Post-Mod Inspection	GPD Project #: 2009591.00, dated 01/13/2010	4601541	CCISITES
Modification Design	GPD Project #: 2014777.841294.04, dated 09/22/2014	5306639	CCISITES
Post-Mod Inspection	GPD Project #: 2015777.841294.05, dated 06/17/2015	5750961	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Caste has calculated and provided the effective area for panel antennas using approved methods following the intent of the of the TIA-222 standard.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions or items in Table 3 are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	244.917 - 224.792	Leg	ROHN 2.5 STD	3	-16.02	66.58	24.1	Pass
T2	224.792 - 204.625	Leg	ROHN 3 EH	39	-45.93	115.74	39.7	Pass
T3	204.625 - 184.438	Leg	ROHN 3.5 EH	69	-74.24	131.32	56.5	Pass
T4	184.438 - 164.229	Leg	ROHN 4 EH	90	-103.19	167.14	61.7	Pass
T5	164.229 - 144.021	Leg	ROHN 5 EH	111	-131.94	250.61	52.6	Pass
T6	144.021 - 123.813	Leg	ROHN 5 EH	132	-157.78	209.91	75.2	Pass
T7	123.813 - 103.604	Leg	ROHN 6 EH	147	-186.12	317.44	58.6	Pass
T8	103.604 - 83.3333	Leg	ROHN 6 EH	162	-214.93	317.01	67.8	Pass
T9	83.3333 - 63	Leg	ROHN 6 EH	177	-243.98	316.57	77.1	Pass
T10	63 - 42.6667	Leg	ROHN 8 EHS	192	-273.24	404.01	67.6	Pass
T11	42.6667 - 22.3334	Leg	ROHN 8 EHS	207	-279.00	404.01	69.1	Pass
T12	22.3334 - 2	Leg	ROHN 8 EH	240	-307.42	529.11	58.1	Pass
T1	244.917 - 224.792	Diagonal	L1-3/4x1-3/4x3/16	11	-3.76	11.77	31.9 61.8 (b)	Pass
T2	224.792 - 204.625	Diagonal	L1-3/4x1-3/4x3/16	47	-4.25	6.64	63.9 74.7 (b)	Pass
T3	204.625 - 184.438	Diagonal	L2-1/2x2-1/2x3/16	74	-4.75	12.21	38.9 73.0 (b)	Pass
T4	184.438 - 164.229	Diagonal	L2-1/2x2-1/2x1/4	94	-5.36	12.04	44.5 61.1 (b)	Pass
T5	164.229 - 144.021	Diagonal	L2-1/2x2-1/2x5/16	115	-5.99	11.52	52.0 55.5 (b)	Pass
T6	144.021 - 123.813	Diagonal	L 3 x 3 x 5/16	136	-7.25	13.67	53.0	Pass
T7	123.813 - 103.604	Diagonal	L3-1/2x3-1/2x1/4	151	-7.97	15.14	52.6 71.8 (b)	Pass
T8	103.604 - 83.3333	Diagonal	L 4 x 4 x 5/16	166	-8.81	23.53	37.5 52.7 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T9	83.3333 - 63	Diagonal	L 4 x 4 x 5/16	181	-9.64	19.99	48.2 57.3 (b)	Pass
T10	63 - 42.6667	Diagonal	L 4 x 4 x 5/16	196	-10.41	17.40	59.9 62.1 (b)	Pass
T11	42.6667 - 22.3334	Diagonal	P3 STD	219	-18.28	32.58	56.1	Pass
T12	22.3334 - 2	Diagonal	P3 STD	252	-17.89	31.16	57.4	Pass
T11	42.6667 - 22.3334	Horizontal	ROHN 2.5 STD	215	-9.53	15.91	59.9	Pass
T12	22.3334 - 2	Horizontal	P3 STD	248	-9.91	26.65	37.2	Pass
T1	244.917 - 224.792	Top Girt	L 2 x 2 x 1/8	4	-0.35	4.27	8.3	Pass
T2	224.792 - 204.625	Top Girt	L1-3/4x1-3/4x3/16	40	-0.06	4.09	1.5	Pass
T11	42.6667 - 22.3334	Redund Horz 1 Bracing	ROHN 1.5 STD	226	-4.84	13.67	35.4	Pass
T12	22.3334 - 2	Redund Horz 1 Bracing	ROHN 1.5 STD	253	-5.33	11.55	46.2	Pass
T11	42.6667 - 22.3334	Redund Diag 1 Bracing	ROHN 2 STD	221	-4.41	8.96	49.2	Pass
T12	22.3334 - 2	Redund Diag 1 Bracing	ROHN 2 STD	260	-4.58	8.51	53.8	Pass
T11	42.6667 - 22.3334	Redund Hip 1 Bracing	ROHN 1.5 STD	222	-0.03	12.19	0.2	Pass
T12	22.3334 - 2	Redund Hip 1 Bracing	ROHN 1.5 STD	255	-0.02	10.40	0.2	Pass
T11	42.6667 - 22.3334	Redund Hip Diagonal 1 Bracing	Rohn 2.5 STD	223	-0.08	10.66	0.8	Pass
T12	22.3334 - 2	Redund Hip Diagonal 1 Bracing	Rohn 2.5 STD	265	-0.08	9.78	0.8	Pass
T11	42.6667 - 22.3334	Inner Bracing	ROHN 2 STD	237	-0.01	6.55	0.5	Pass
T12	22.3334 - 2	Inner Bracing	P3 STD	268	-0.02	25.30	0.4	Pass
						Summary	ELC:	Load Case 7
						Leg (T9)	77.1	Pass
						Diagonal (T2)	74.7	Pass
						Horizontal (T11)	59.9	Pass
						Top Girt (T1)	8.3	Pass
						Redund Horz 1 Bracing (T12)	46.2	Pass
						Redund Diag 1 Bracing (T12)	53.8	Pass
						Redund Hip 1 Bracing (T11)	0.2	Pass
						Redund Hip Diagonal 1 Bracing (T12)	0.8	Pass
						Inner Bracing (T11)	0.5	Pass
						Bolt Checks	74.7	Pass
						Rating =	77.1	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	0	23.6	Pass
1,2	Base Foundation Structural	0	42.5	Pass
1,2	Base Foundation Soil Interaction	0	57.7	Pass

Structure Rating (max from all components) =	77.1%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H, section 15.5

4.1) Recommendations

The tower has sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

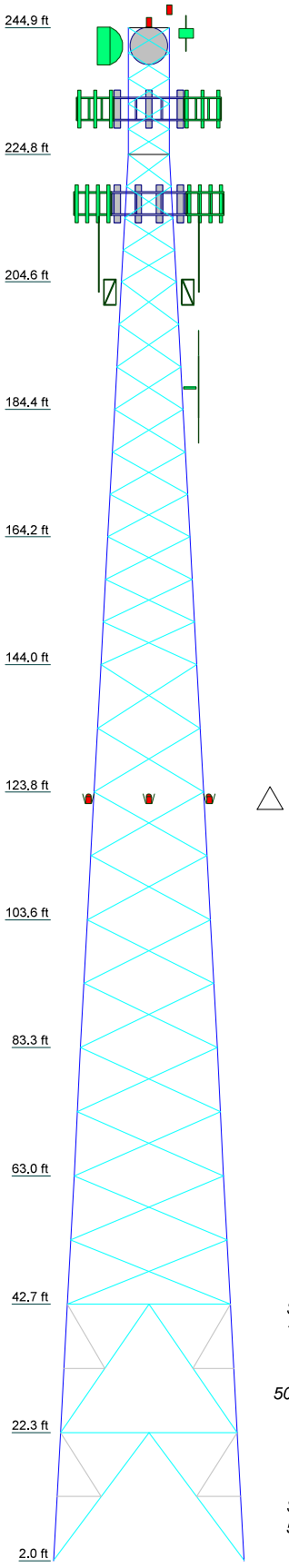
Table 6 - Dish Tilt/Sway Results for 60 mph Service Wind Speed

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
242.00	USX6-6W-6GR	39	6.160	0.2480	0.0219	342124

APPENDIX A

TNXTOWER OUTPUT

Section	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	
Legs	ROHN 8 EH	ROHN 8 EHS			ROHN 6 EH		ROHN 5 EH		ROHN 4 EH	ROHN 3.5 EH	ROHN 3 EH	ROHN 2.5 STD	
Leg Grade	A572-50												
Diagonals	P3 STD	L 4 x 4 x 5/16				L3-1/2x3-1/2x1/4	L 3 x 3 x 5/16	L2-1/2x2-1/2x5/16	L2-1/2x2-1/2x1/4	L2-1/2x2-1/2x3/16	L1-3/4x1-3/4x3/16		
Diagonal Grade	A572-50						A36						
Top Girts						N.A.					L1-3/4x1-3/4x3/16	L 2 x 2 x 1/8	
Horizontals	P3 STD	ROHN 2.5 STD					N.A.						
Red. Horizontals		ROHN 1.5 STD					N.A.						
Red. Diagonals		ROHN 2 STD					N.A.						
Red. Hips		ROHN 1.5 STD					N.A.						
Inner Bracing	P3 STD	ROHN 2 STD					N.A.						
Face Width (ft)	30.1771	28.0303	25.8835	23.7367	21.59	19.4432	17.2964	15.1496	13.0028	10.8561	8.70928	6.5625	
# Panels @ (ft)	1 @ 20.25	1 @ 20.3333	4 @ 10.1667		2 @ 10.1354	4 @ 10.1042		6 @ 6.73611		3 @ 6.72917	4 @ 5.04167	5 @ 4.025	0.9
Weight (K)	36.5	5.5	4.4	4.6	4.2	4.0	3.2	2.7	2.7	1.9	1.4	1.1	



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

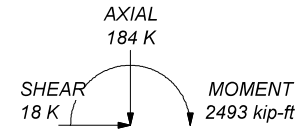
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 77.1%

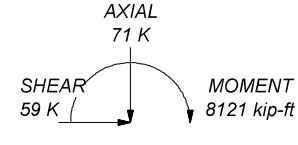
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 334 K
SHEAR: 36 K

UPLIFT: -279 K
SHEAR: 31 K



TORQUE 11 kip-ft
50 mph WIND - 1.5000 in ICE



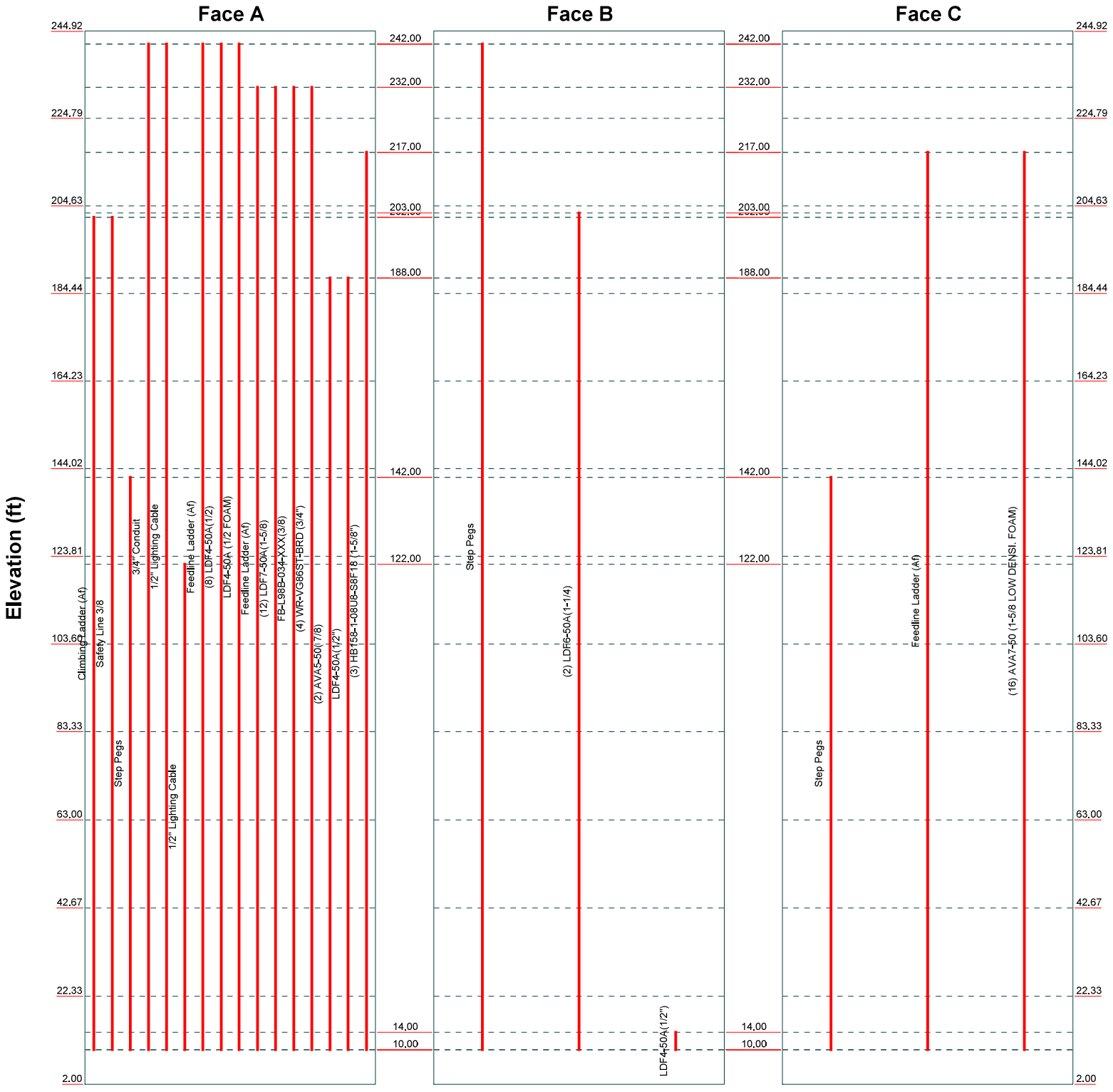
TORQUE 50 kip-ft
REACTIONS - 120 mph WIND

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: **BU #: 841294 MONROE-GUINEA ROAD**			
Project: **2020777.841294.15**			
Client: Crown Castle, Inc	Drawn by: msteward	App'd:	
Code: TIA-222-H	Date: 06/04/20	Scale: NTS	
Path: T:\Crown\841294\15\5_Structural\00_Structure\00_Rev 0\03_Modeling\841294.dri		Dwg No. E-1	

Feed Line Distribution Chart
2' - 244'11-1/32"

Round | Flat | App In Face | App Out Face | Truss Leg



GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job:	***BU #: 841294 MONROE-GUINEA ROAD***		
Project:	***2020777.841294.15***		
Client: Crown Castle, Inc	Drawn by: msteward	App'd:	
Code: TIA-222-H	Date: 06/04/20	Scale: NTS	
Path: T:\Crown\841294\15\5_Structural\00_Structure\00_Rev 0\03_Modeling\841294.dri		Dwg No. E-7	

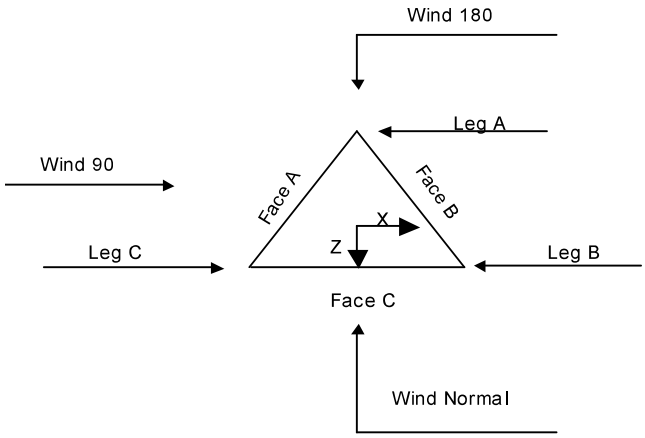
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 244.92 ft above the ground line.
The base of the tower is set at an elevation of 2.00 ft above the ground line.
The face width of the tower is 6.56 ft at the top and 30.18 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 586.00 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Stress ratio used in tower member design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	244.92-224.79			6.56	1	20.13
T2	224.79-204.63			6.56	1	20.17
T3	204.63-184.44			8.71	1	20.19
T4	184.44-164.23			10.86	1	20.21
T5	164.23-144.02			13.00	1	20.21
T6	144.02-123.81			15.15	1	20.21
T7	123.81-103.60			17.30	1	20.21
T8	103.60-83.33			19.44	1	20.27
T9	83.33-63.00			21.59	1	20.33
T10	63.00-42.67			23.74	1	20.33
T11	42.67-22.33			25.88	1	20.33
T12	22.33-2.00			28.03	1	20.33

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	244.92-224.79	4.03	X Brace	No	No	0.0000	0.0000
T2	224.79-204.63	5.04	X Brace	No	No	0.0000	0.0000
T3	204.63-184.44	6.73	X Brace	No	No	0.0000	0.0000
T4	184.44-164.23	6.74	X Brace	No	No	0.0000	0.0000
T5	164.23-144.02	6.74	X Brace	No	No	0.0000	0.0000
T6	144.02-123.81	10.10	X Brace	No	No	0.0000	0.0000
T7	123.81-103.60	10.10	X Brace	No	No	0.0000	0.0000
T8	103.60-83.33	10.14	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T9	83.33-63.00	10.17	X Brace	No	No	0.0000	0.0000
T10	63.00-42.67	10.17	X Brace	No	No	0.0000	0.0000
T11	42.67-22.33	20.33	K1 Down	No	Yes	0.0000	0.0000
T12	22.33-2.00	20.25	K1 Down	No	Yes	0.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 244.92-224.79	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1-3/4x1-3/4x3/16	A36 (36 ksi)
T2 224.79-204.63	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1-3/4x1-3/4x3/16	A36 (36 ksi)
T3 204.63-184.44	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x3/16	A36 (36 ksi)
T4 184.44-164.23	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x1/4	A36 (36 ksi)
T5 164.23-144.02	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x5/16	A36 (36 ksi)
T6 144.02-123.81	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T7 123.81-103.60	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3-1/2x3-1/2x1/4	A36 (36 ksi)
T8 103.60-83.33	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 5/16	A36 (36 ksi)
T9 83.33-63.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 5/16	A36 (36 ksi)
T10 63.00-42.67	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 5/16	A36 (36 ksi)
T11 42.67-22.33	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	P3 STD	A572-50 (50 ksi)
T12 22.33-2.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	P3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 244.92-224.79	Equal Angle	L 2 x 2 x 1/8	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 224.79-204.63	Equal Angle	L1-3/4x1-3/4x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T11 42.67-22.33	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T12 22.33-2.00	None	Solid Round		A36 (36 ksi)	Pipe	P3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T11 42.67-22.33	Solid Round		A36 (36 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T12 22.33-2.00	Solid Round		A36 (36 ksi)	Pipe	P3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T11 42.67-22.33	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	Rohn 2.5 STD	1
T12 22.33-2.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	Rohn 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 244.92-224.79	0.00	0.1875	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 224.79-204.63	0.00	0.1875	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 204.63-184.44	0.00	0.1875	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 184.44-164.23	0.00	0.2500	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 164.23-144.02	0.00	0.3125	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T6 144.02-123.81	0.00	0.3125	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 123.81-103.60	0.00	0.2500	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 103.60-83.33	0.00	0.3125	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 83.33-63.00	0.00	0.3125	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 63.00-42.67	0.00	0.3125	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 42.67-22.33	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 22.33-2.00	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 244.92-224.79	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 224.79-204.63	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 204.63-184.44	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 184.44-164.23	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 164.23-144.02	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 144.02-123.81	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 123.81-103.60	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 103.60-83.33	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 83.33-63.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 63.00-42.67	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 42.67-22.33	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T12 22.33-2.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 244.92-224.79	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 224.79-204.63	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 204.63-184.44	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 184.44-164.23	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 164.23-144.02	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 144.02-123.81	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 123.81-103.60	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 103.60-83.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 83.33-63.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 63.00-42.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 42.67-22.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 22.33-2.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 244.92-224.79	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 224.79-204.63	Flange	0.8750 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 204.63-184.44	Flange	0.8750 A325N	4	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 184.44-164.23	Flange	1.0000 A325N	4	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 164.23-144.02	Flange	1.0000 A325N	4	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 144.02-123.81	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 123.81-103.60	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 103.60-83.33	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 83.33-63.00	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 63.00-42.67	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T11 42.67-22.33	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	2	0.6250 A325N	0
T12 22.33-2.00	Flange	1.0000 A354-BC	0	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder (Af)	A	No	No	Af (CaAa)	202.00 - 10.00	0.0000	0.5	1	1	3.8400	3.8400		4.81
Safety Line 3/8	A	No	No	Ar (CaAa)	202.00 - 10.00	0.0000	0.5	1	1	0.3750	0.3750		0.22
Step Pegs	C	No	No	Ar (CaAa)	142.00 - 10.00	0.0000	0.5	1	1	0.8000	0.8000		2.72
Step Pegs	A	No	No	Ar (CaAa)	142.00 - 10.00	0.0000	0.5	1	1	0.8000	0.8000		2.72
Step Pegs	B	No	No	Ar (CaAa)	242.00 - 10.00	0.0000	0.5	1	1	0.8000	0.8000		2.72
3/4" Conduit	A	No	No	Ar (CaAa)	242.00 - 10.00	0.0000	0.4825	1	1	0.7500	0.7500		0.50
1/2" Lighting Cable	A	No	No	Ar (CaAa)	242.00 - 10.00	0.0000	0.4825	1	1	0.6250	0.6250		0.50
1/2" Lighting Cable	A	No	No	Ar (CaAa)	122.00 - 10.00	0.0000	0.4825	1	1	0.6250	0.6250		0.50
Feedline Ladder (Af)	A	No	No	Af (CaAa)	242.00 - 10.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
LDF4-50A(1/2)	A	No	No	Ar (CaAa)	242.00 - 10.00	0.0000	0.25	8	8	0.6250	0.6250		0.15
LDF4-50A (1/2 FOAM)	A	No	No	Ar (CaAa)	242.00 - 10.00	0.0000	0.48	1	1	0.6300	0.6300		0.15
Feedline Ladder (Af)	A	No	No	Af (CaAa)	232.00 - 10.00	0.0000	-0.4	1	1	3.0000	3.0000		8.40
LDF7-50A(1-5/8)	A	No	No	Ar (CaAa)	232.00 - 10.00	0.0000	-0.4	12	4	1.0000	1.9800		0.82
FB-L98B-034-XXX(3/8)	A	No	No	Ar (CaAa)	232.00 - 10.00	0.0000	-0.35	1	1	0.3937	0.3937		0.06
WR-VG86ST-BRD (3/4")	A	No	No	Ar (CaAa)	232.00 - 10.00	0.0000	-0.3	4	2	0.7950	0.7950		0.60
AVA5-50(7/8)	A	No	No	Ar (CaAa)	188.00 - 10.00	0.0000	-0.42	2	1	1.0000	1.1020		0.30
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	188.00 - 10.00	0.0000	-0.42	1	1	0.6300	0.6300		0.15
LDF6-50A(1-1/4)	B	No	No	Ar (CaAa)	203.00 - 10.00	0.0000	0.49	2	2	1.0000	1.5500		0.60
Feedline Ladder (Af)	C	No	No	Af (CaAa)	217.00 - 10.00	0.0000	-0.375	1	1	3.0000	3.0000		8.40
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	No	Ar (CaAa)	217.00 - 10.00	0.0000	-0.4	16	16	1.0000	1.9800		0.72
HB158-1-08U8-S8F18	A	No	No	Ar (CaAa)	217.00 - 10.00	2.0000	-0.45	3	3	1.0000	1.9800		1.70

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(1-5/8") LDF4-50A(1/2")	B	No	No	Ar (CaAa)	14.00 - 10.00	0.0000	0.45	1	1	0.6300	0.6300		0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Flash Beacon Lighting	A	From Leg	0.00 0.00 0.00	0.0000	245.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.70 3.10 3.50 4.30	2.70 3.10 3.50 4.30	0.05 0.07 0.09 0.13
Lighting Rod 3/4" x 4'	B	From Leg	0.00 0.00 2.00	0.0000	245.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.30 0.71 1.00 1.52	0.30 0.71 1.00 1.52	0.03 0.03 0.04 0.06
Side Arm Mount [SO 303-3]	B	None		0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.67 11.04 14.57 22.36	7.67 11.04 14.57 22.36	0.34 0.48 0.65 1.14
(2) FREEMILE 24 GHZ FODU	A	From Leg	3.00 0.00 0.00	0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.68 0.79 0.90 1.15	0.25 0.33 0.41 0.59	0.00 0.01 0.02 0.04
(2) FREEMILE 24 GHZ FODU	C	From Leg	3.00 0.00 0.00	0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.68 0.79 0.90 1.15	0.25 0.33 0.41 0.59	0.00 0.01 0.02 0.04
DB806-XC	B	From Leg	3.00 0.00 2.00	0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.14 1.68 2.03 2.75	1.14 1.68 2.03 2.75	0.02 0.03 0.04 0.08
FMO	B	From Leg	3.00 0.00 2.00	0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.40 8.81 9.24 10.10	8.40 8.81 9.24 10.10	0.01 0.18 0.36 0.75
DMP65R-BU8D	A	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.86 16.80 17.75 19.71	5.95 6.78 7.64 9.39	0.11 0.20 0.31 0.55
DMP65R-BU8D	B	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.86 16.80 17.75 19.71	5.95 6.78 7.64 9.39	0.11 0.20 0.31 0.55
DMP65R-BU8D	C	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.86 16.80 17.75 19.71	5.95 6.78 7.64 9.39	0.11 0.20 0.31 0.55
HPA-65R-BUU-H6	A	From Leg	3.00 0.00 2.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 10.00 10.79 12.43	4.65 5.36 6.09 7.60	0.05 0.11 0.17 0.32

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HPA-65R-BUU-H6	B	From Leg	3.00 0.00 2.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 10.00 10.79 12.43	4.65 5.36 6.09 7.60	0.05 0.11 0.17 0.32
HPA-65R-BUU-H6	C	From Leg	3.00 0.00 2.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 10.00 10.79 12.43	4.65 5.36 6.09 7.60	0.05 0.11 0.17 0.32
OPA65R-BU6D	A	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.22 12.98 13.75 15.35	4.54 5.19 5.86 7.24	0.06 0.14 0.22 0.40
OPA65R-BU6D	B	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.22 12.98 13.75 15.35	4.54 5.19 5.86 7.24	0.06 0.14 0.22 0.40
OPA65R-BU6D	C	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.22 12.98 13.75 15.35	4.54 5.19 5.86 7.24	0.06 0.14 0.22 0.40
7770.00	A	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.51 5.87 6.23 6.99	2.93 3.27 3.63 4.35	0.04 0.07 0.11 0.20
7770.00	B	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.51 5.87 6.23 6.99	2.93 3.27 3.63 4.35	0.04 0.07 0.11 0.20
7770.00	C	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.51 5.87 6.23 6.99	2.93 3.27 3.63 4.35	0.04 0.07 0.11 0.20
RADIO 4449 B5/B12	A	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.30 1.45 1.60 1.92	0.07 0.09 0.11 0.16
RADIO 4449 B5/B12	B	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.30 1.45 1.60 1.92	0.07 0.09 0.11 0.16
RADIO 4449 B5/B12	C	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.30 1.45 1.60 1.92	0.07 0.09 0.11 0.16
RRUS 32 B2	A	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	C	From Leg	3.00 0.00 0.00	0.0000	232.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 4478 B14	A	From Leg	3.00	0.0000	232.00	No Ice	1.84	1.06	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
RRUS 4478 B14	B	From Leg	3.00	0.0000	232.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
RRUS 4478 B14	C	From Leg	3.00	0.0000	232.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
(2) LGP13519	A	From Leg	3.00	0.0000	232.00	No Ice	0.29	0.18	0.01
			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
						2" Ice	0.62	0.47	0.02
(2) LGP13519	B	From Leg	3.00	0.0000	232.00	No Ice	0.29	0.18	0.01
			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
						2" Ice	0.62	0.47	0.02
(2) LGP13519	C	From Leg	3.00	0.0000	232.00	No Ice	0.29	0.18	0.01
			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
						2" Ice	0.62	0.47	0.02
(2) DC6-48-60-18-8F Surge Suppression Unit	A	From Leg	3.00	0.0000	232.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			0.00			1" Ice	1.64	1.64	0.06
						2" Ice	2.04	2.04	0.11
(3) 12.5 ft Frame Mount	B	None		0.0000	232.00	No Ice	27.93	27.93	1.28
						1/2" Ice	37.68	37.68	1.76
						1" Ice	47.43	47.43	2.24
						2" Ice	66.93	66.93	3.19
8' STD P2 pipe	A	From Leg	3.00	0.0000	232.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
8' STD P2 pipe	C	From Leg	3.00	0.0000	232.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
Sector Mount [SM 503-3]	B	None		0.0000	217.00	No Ice	30.43	30.43	1.69
						1/2" Ice	43.02	43.02	2.30
						1" Ice	55.43	55.43	3.10
						2" Ice	79.89	79.89	5.27
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.0000	217.00	No Ice	5.50	4.38	0.10
			0.00			1/2" Ice	5.97	4.84	0.17
			3.00			1" Ice	6.45	5.30	0.25
						2" Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.0000	217.00	No Ice	5.50	4.38	0.10
			0.00			1/2" Ice	5.97	4.84	0.17
			3.00			1" Ice	6.45	5.30	0.25
						2" Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.0000	217.00	No Ice	5.50	4.38	0.10
			0.00			1/2" Ice	5.97	4.84	0.17
			3.00			1" Ice	6.45	5.30	0.25
						2" Ice	7.44	6.26	0.46
LNX-8514DS-A1M w/ Mount Pipe	A	From Leg	4.00	0.0000	217.00	No Ice	5.56	4.47	0.08
			0.00			1/2" Ice	6.07	4.97	0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.00			1" Ice	6.59	5.47	0.26
						2" Ice	7.65	6.52	0.49
LNX-8514DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	5.56 6.07 6.59	4.47 4.97 5.47	0.08 0.17 0.26
						2" Ice	7.65	6.52	0.49
LNX-8514DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	5.56 6.07 6.59	4.47 4.97 5.47	0.08 0.17 0.26
						2" Ice	7.65	6.52	0.49
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.51	5.99 6.72 7.47	0.08 0.14 0.21
						2" Ice	11.11	9.02	0.40
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.51	5.99 6.72 7.47	0.08 0.14 0.21
						2" Ice	11.11	9.02	0.40
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.51	5.99 6.72 7.47	0.08 0.14 0.21
						2" Ice	11.11	9.02	0.40
B66A RRH4X45	A	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	2.54 2.75 2.97	1.61 1.79 1.98	0.06 0.08 0.10
						2" Ice	3.43	2.37	0.16
B66A RRH4X45	B	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	2.54 2.75 2.97	1.61 1.79 1.98	0.06 0.08 0.10
						2" Ice	3.43	2.37	0.16
B66A RRH4X45	C	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	2.54 2.75 2.97	1.61 1.79 1.98	0.06 0.08 0.10
						2" Ice	3.43	2.37	0.16
RRH2X60-700	A	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
						2" Ice	4.58	2.79	0.17
RRH2X60-700	B	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
						2" Ice	4.58	2.79	0.17
RRH2X60-700	C	From Leg	4.00 0.00 3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
						2" Ice	4.58	2.79	0.17
(2) DB-T1-6Z-8AB-0Z	C	From Leg	1.00 0.00 -3.00	0.0000	217.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
						2" Ice	5.93	2.81	0.21
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0.00 0.00	0.0000	203.00	No Ice 1/2" Ice 1" Ice	0.41 0.81 1.23	2.26 3.83 5.48	0.04 0.06 0.09
						2" Ice	2.08	9.37	0.19
Side Arm Mount [SO 306-1]	C	From Leg	2.00 0.00 0.00	0.0000	203.00	No Ice 1/2" Ice 1" Ice	0.41 0.81 1.23	2.26 3.83 5.48	0.04 0.06 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.08	9.37	0.19
OG-4	B	From Leg	4.00 0.00 6.00	0.0000	203.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.31 7.14 7.86 9.34	4.31 7.14 7.86 9.34	0.02 0.06 0.11 0.23
OG-4	C	From Leg	4.00 0.00 6.00	0.0000	203.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.31 7.14 7.86 9.34	4.31 7.14 7.86 9.34	0.02 0.06 0.11 0.23
Side Arm Mount [SO 301-1]	B	From Leg	1.50 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.46 0.65 0.87 1.41	0.91 1.30 1.71 2.62	0.02 0.03 0.05 0.09
DB589-A	B	From Leg	3.00 0.00 2.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.76 4.17 5.59 8.49	2.76 4.17 5.59 8.49	0.01 0.03 0.06 0.15
DB589-A	B	From Leg	3.00 0.00 -2.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.76 4.17 5.59 8.49	2.76 4.17 5.59 8.49	0.01 0.03 0.06 0.15
17" Side Light Mount	A	From Face	0.50 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.27 3.42 4.58 6.93	2.27 3.42 4.58 6.93	0.06 1.15 2.26 4.55
17" Side Light Mount	C	From Face	0.50 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.27 3.42 4.58 6.93	2.27 3.42 4.58 6.93	0.06 1.15 2.26 4.55
Side Light	A	From Leg	1.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.33 0.47 0.60 0.87	0.33 0.47 0.60 0.87	0.01 0.01 0.01 0.01
Side Light	B	From Leg	1.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.33 0.47 0.60 0.87	0.33 0.47 0.60 0.87	0.01 0.01 0.01 0.01
Side Light	C	From Leg	1.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.33 0.47 0.60 0.87	0.33 0.47 0.60 0.87	0.01 0.01 0.01 0.01
TY-840	B	From Face	1.00 0.00 0.00	0.0000	14.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.25 0.45 0.65 1.05	0.25 0.45 0.65 1.05	0.00 0.00 0.00 0.01

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (K)
USX6-6W-6GR	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	28.0000		242.00	6.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.27 29.07 29.86 31.44	0.33 0.48 0.63 0.93
USX6-6W-6GR	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-33.0000		242.00	6.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.27 29.07 29.86 31.44	0.33 0.48 0.63 0.93

Maximum Tower Deflections - Service Wind

Section No.	Elevation (ft)	Horz. Deflection (in)	Gov. Load Comb.	Tilt (°)	Twist (°)
T1	244.917 - 224.792	6.314	39	0.2490	0.0229
T2	224.792 - 204.625	5.262	39	0.2390	0.0158
T3	204.625 - 184.438	4.266	39	0.2167	0.0169
T4	184.438 - 164.229	3.383	39	0.1878	0.0173
T5	164.229 - 144.021	2.626	39	0.1586	0.0156
T6	144.021 - 123.813	1.980	39	0.1352	0.0137
T7	123.813 - 103.604	1.441	39	0.1099	0.0120
T8	103.604 - 83.3333	0.992	39	0.0908	0.0100
T9	83.3333 - 63	0.629	39	0.0707	0.0085
T10	63 - 42.6667	0.349	39	0.0500	0.0069
T11	42.6667 - 22.3334	0.149	39	0.0317	0.0053
T12	22.3334 - 2	0.044	39	0.0138	0.0025

Critical Deflections and Radius of Curvature - Service Wind

Elevation (ft)	Appurtenance	Gov. Load Comb.	Deflection (in)	Tilt (°)	Twist (°)	Radius of Curvature (ft)
245.00	Flash Beacon Lighting	39	6.314	0.2490	0.0229	342124
242.00	USX6-6W-6GR	39	6.160	0.2480	0.0219	342124
232.00	DMP65R-BU8D	39	5.635	0.2436	0.0182	132435
217.00	Sector Mount [SM 503-3]	39	4.867	0.2317	0.0136	59033
203.00	Side Arm Mount [SO 306-1]	39	4.190	0.2145	0.0171	38672
188.00	Side Arm Mount [SO 301-1]	39	3.529	0.1932	0.0175	36919
122.00	17" Side Light Mount	39	1.397	0.1079	0.0118	57857
14.00	TY-840	39	0.022	0.0077	0.0014	129943

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	244.917 - 224.792	24.128	3	0.9475	0.0869
T2	224.792 - 204.625	20.119	3	0.9122	0.0601
T3	204.625 - 184.438	16.314	3	0.8287	0.0639
T4	184.438 - 164.229	12.936	3	0.7188	0.0656
T5	164.229 - 144.021	10.039	3	0.6070	0.0592
T6	144.021 - 123.813	7.569	3	0.5173	0.0518
T7	123.813 - 103.604	5.507	3	0.4205	0.0452
T8	103.604 - 83.3333	3.789	3	0.3474	0.0378
T9	83.3333 - 63	2.401	3	0.2706	0.0321
T10	63 - 42.6667	1.331	3	0.1913	0.0261
T11	42.6667 - 22.3334	0.567	2	0.1214	0.0198
T12	22.3334 - 2	0.167	2	0.0528	0.0094

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245.00	Flash Beacon Lighting	3	24.128	0.9475	0.0869	97180
242.00	USX6-6W-6GR	3	23.542	0.9439	0.0830	97180
232.00	DMP65R-BU8D	3	21.543	0.9290	0.0691	37618
217.00	Sector Mount [SM 503-3]	3	18.611	0.8853	0.0513	15995
203.00	Side Arm Mount [SO 306-1]	3	16.024	0.8204	0.0649	10361
188.00	Side Arm Mount [SO 301-1]	3	13.497	0.7391	0.0663	9773
122.00	17" Side Light Mount	3	5.340	0.4129	0.0446	15094
14.00	TY-840	2	0.083	0.0295	0.0053	34012

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	244.917	Leg	A325N	0.7500	4	2.94	30.10	0.098	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	3.70	5.71	0.648	1.05	Member Block Shear
		Top Girt	A325N	0.5000	1	0.35	4.13	0.083	1.05	Member Bearing
T2	224.792	Leg	A325N	0.8750	4	9.41	41.56	0.226	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	4.48	5.71	0.785	1.05	Member Block Shear
		Top Girt	A325N	0.5000	1	0.04	5.71	0.007	1.05	Member Block Shear
T3	204.625	Leg	A325N	0.8750	4	15.92	41.56	0.383	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	4.75	6.20	0.767	1.05	Member Bearing
T4	184.438	Leg	A325N	1.0000	4	22.39	54.52	0.411	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	5.30	8.27	0.641	1.05	Member Bearing
T5	164.229	Leg	A325N	1.0000	4	28.64	54.52	0.525	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	6.02	10.33	0.583	1.05	Member Bearing
T6	144.021	Leg	A325N	1.0000	6	22.79	54.52	0.418	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	7.21	13.05	0.552	1.05	Gusset Bearing
T7	123.813	Leg	A325N	1.0000	6	26.77	54.52	0.491	1.05	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325X	0.6250	1	7.87	10.44	0.754	1.05	Gusset Bearing
T8	103.604	Leg	A325N	1.0000	6	30.72	54.52	0.564	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	8.73	15.77	0.554	1.05	Gusset Bearing
T9	83.3333	Leg	A325N	1.0000	6	34.66	54.52	0.636	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	9.48	15.77	0.601	1.05	Gusset Bearing
T10	63	Leg	A325N	1.0000	8	28.92	54.52	0.530	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	10.27	15.77	0.652	1.05	Gusset Bearing
T11	42.6667	Leg	A325N	1.0000	8	29.31	54.52	0.538	1.05	Bolt Tension
		Diagonal	A325N	0.7500	3	6.09	19.88	0.306	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	4.89	19.88	0.246	1.05	Bolt Shear
T12	22.3334	Diagonal	A325N	0.7500	3	5.96	19.88	0.300	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	4.95	19.88	0.249	1.05	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	ROHN 2.5 STD	20.13	4.02	51.0 K=1.00	1.7040	-16.02	63.41	0.253 [1]
T2	224.792 - 204.625	ROHN 3 EH	20.20	5.05	53.3 K=1.00	3.0159	-45.93	110.22	0.417 [1]
T3	204.625 - 184.438	ROHN 3.5 EH	20.23	6.74	61.9 K=1.00	3.6784	-74.24	125.07	0.594 [1]
T4	184.438 - 164.229	ROHN 4 EH	20.25	6.75	54.8 K=1.00	4.4074	-103.19	159.18	0.648 [1]
T5	164.229 - 144.021	ROHN 5 EH	20.25	6.75	44.0 K=1.00	6.1120	-131.94	238.68	0.553 [1]
T6	144.021 - 123.813	ROHN 5 EH	20.25	10.12	66.1 K=1.00	6.1120	-157.78	199.91	0.789 [1]
T7	123.813 - 103.604	ROHN 6 EH	20.25	10.12	55.3 K=1.00	8.4049	-186.12	302.33	0.616 [1]
T8	103.604 - 83.3333	ROHN 6 EH	20.31	10.15	55.5 K=1.00	8.4049	-214.93	301.91	0.712 [1]
T9	83.3333 - 63	ROHN 6 EH	20.37	10.19	55.7 K=1.00	8.4049	-243.98	301.49	0.809 [1]
T10	63 - 42.6667	ROHN 8 EHS	20.37	10.19	41.9 K=1.00	9.7193	-273.24	384.77	0.710 [1]
T11	42.6667 - 22.3334	ROHN 8 EHS	20.37	10.19	41.9 K=1.00	9.7193	-279.00	384.77	0.725 [1]
T12	22.3334 - 2	ROHN 8 EH	20.37	10.14	42.3 K=1.00	12.7627	-307.42	503.91	0.610 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	L1-3/4x1-3/4x3/16	7.70	3.60	125.9 K=1.00	0.6211	-3.76	11.21	0.335 [1]
T2	224.792 - 204.625	L1-3/4x1-3/4x3/16	9.83	4.80	167.7 K=1.00	0.6211	-4.25	6.32	0.671 [1]
T3	204.625 - 184.438	L2-1/2x2-1/2x3/16	12.47	6.15	149.0 K=1.00	0.9023	-4.75	11.63	0.408 [1]
T4	184.438 - 164.229	L2-1/2x2-1/2x1/4	14.33	7.05	172.2 K=1.00	1.1875	-5.36	11.47	0.467 [1]
T5	164.229 - 144.021	L2-1/2x2-1/2x5/16	16.25	7.97	195.5 K=1.00	1.4648	-5.99	10.97	0.546 [1]
T6	144.021 - 123.813	L 3 x 3 x 5/16	19.57	9.71	197.8 K=1.00	1.7800	-7.25	13.02	0.556 [1]
T7	123.813 - 103.604	L3-1/2x3-1/2x1/4	21.44	10.59	183.1 K=1.00	1.6900	-7.97	14.42	0.552 [1]
T8	103.604 - 83.3333	L 4 x 4 x 5/16	23.37	11.54	175.1 K=1.00	2.4000	-8.81	22.41	0.393 [1]
T9	83.3333 - 63	L 4 x 4 x 5/16	25.33	12.52	190.0 K=1.00	2.4000	-9.64	19.03	0.506 [1]
T10	63 - 42.6667	L 4 x 4 x 5/16 KL/R > 200 (C) - 196	27.31	13.42	203.6 K=1.00	2.4000	-10.41	16.57	0.629 [1]
T11	42.6667 - 22.3334	P3 STD	24.70	12.35	127.4 K=1.00	2.2285	-18.28	31.03	0.589 [1]
T12	22.3334 - 2	P3 STD	25.26	12.63	130.2 K=1.00	2.2285	-17.89	29.68	0.603 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2.5 STD	25.88	12.58	159.4 K=1.00	1.7040	-9.53	15.16	0.629 [1]
T12	22.3334 - 2	P3 STD	28.03	13.66	140.8 K=1.00	2.2285	-9.91	25.38	0.390 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	L 2 x 2 x 1/8	6.56	6.11	184.6 K=1.00	0.4844	-0.35	4.07	0.087 [1]
T2	224.792 - 204.625	L1-3/4x1-3/4x3/16 KL/R > 200 (C) - 40	6.56	6.11	213.6 K=1.00	0.6211	-0.06	3.89	0.016 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 1.5 STD	6.47	6.11	117.8 K=1.00	0.7995	-4.84	13.02	0.372 [1]
T12	22.3334 - 2	ROHN 1.5 STD	7.01	6.65	128.1 K=1.00	0.7995	-5.33	11.00	0.485 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2 STD	11.78	11.06	168.7 K=1.00	1.0745	-4.41	8.53	0.516 [1]
T12	22.3334 - 2	ROHN 2 STD	12.02	11.35	173.1 K=1.00	1.0745	-4.58	8.10	0.565 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 1.5 STD	6.47	6.47	124.7 K=1.00	0.7995	-0.03	11.61	0.002 [1]
T12	22.3334 - 2	ROHN 1.5 STD	7.01	7.01	135.1 K=1.00	0.7995	-0.02	9.90	0.002 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	Rohn 2.5 STD	15.37	15.37	194.7 K=1.00	1.7040	-0.08	10.15	0.008 [1]
T12	22.3334 - 2	Rohn 2.5 STD	16.05	16.05	203.3 K=1.00	1.7040	-0.08	9.31	0.008 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2 STD	12.94	12.94	197.3 K=1.00	1.0745	-0.01	6.24	0.002 [1]
T12	22.3334 - 2	P3 STD	14.02	14.02	144.5 K=1.00	2.2285	-0.02	24.10	0.001 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	ROHN 2.5 STD	20.13	4.02	51.0	1.7040	11.75	76.68	0.153 [1]
T2	224.792 - 204.625	ROHN 3 EH	20.20	5.05	53.3	3.0159	37.62	135.72	0.277 [1]
T3	204.625 - 184.438	ROHN 3.5 EH	20.23	6.74	61.9	3.6784	63.68	165.53	0.385 [1]
T4	184.438 - 164.229	ROHN 4 EH	20.25	6.75	54.8	4.4074	89.58	198.34	0.452 [1]
T5	164.229 - 144.021	ROHN 5 EH	20.25	6.75	44.0	6.1120	114.55	275.04	0.416 [1]
T6	144.021 - 123.813	ROHN 5 EH	20.25	10.12	66.1	6.1120	136.76	275.04	0.497 [1]
T7	123.813 - 103.604	ROHN 6 EH	20.25	10.12	55.3	8.4049	160.62	378.22	0.425 [1]
T8	103.604 - 83.3333	ROHN 6 EH	20.31	10.15	55.5	8.4049	184.34	378.22	0.487 [1]
T9	83.3333 - 63	ROHN 6 EH	20.37	10.19	55.7	8.4049	207.98	378.22	0.550 [1]
T10	63 - 42.6667	ROHN 8 EHS	20.37	10.19	41.9	9.7193	231.35	437.37	0.529 [1]
T11	42.6667 - 22.3334	ROHN 8 EHS	20.37	10.19	41.9	9.7193	234.93	437.37	0.537 [1]
T12	22.3334 - 2	ROHN 8 EH	20.37	0.08	0.3	12.7627	280.54	574.32	0.488 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	L1-3/4x1-3/4x3/16	7.70	3.60	82.9	0.3779	3.70	16.44	0.225 [1]
T2	224.792 - 204.625	L1-3/4x1-3/4x3/16	9.38	4.57	104.5	0.3779	4.48	16.44	0.272 [1]
T3	204.625 -	L2-1/2x2-1/2x3/16	11.88	5.85	91.8	0.5889	4.75	25.62	0.186 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	184.438								
T4	184.438 - 164.229	L2-1/2x2-1/2x1/4	14.33	7.05	111.6	0.7734	5.30	33.64	0.158 [1]
T5	164.229 - 144.021	L2-1/2x2-1/2x5/16	16.25	7.97	127.2	0.9521	6.02	41.42	0.145 [1]
T6	144.021 - 123.813	L 3 x 3 x 5/16	19.57	9.71	127.9	1.1592	7.21	50.43	0.143 [1]
T7	123.813 - 103.604	L3-1/2x3-1/2x1/4	21.44	10.59	117.9	1.1269	7.87	49.02	0.161 [1]
T8	103.604 - 83.3333	L 4 x 4 x 5/16	23.37	11.54	113.0	1.5949	8.73	69.38	0.126 [1]
T9	83.3333 - 63	L 4 x 4 x 5/16	25.33	12.52	122.5	1.5949	9.48	69.38	0.137 [1]
T10	63 - 42.6667	L 4 x 4 x 5/16	27.31	13.42	131.2	1.5949	10.27	69.38	0.148 [1]
T11	42.6667 - 22.3334	P3 STD	24.70	12.35	127.4	2.2285	17.41	100.28	0.174 [1]
T12	22.3334 - 2	P3 STD	25.26	12.63	130.2	2.2285	16.95	100.28	0.169 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2.5 STD	25.88	12.58	159.4	1.7040	9.78	76.68	0.128 [1]
T12	22.3334 - 2	P3 STD	28.03	13.66	140.8	2.2285	9.84	100.28	0.098 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	244.917 - 224.792	L 2 x 2 x 1/8	6.56	6.11	121.2	0.3047	0.35	13.25	0.026 [1]
T2	224.792 - 204.625	L1-3/4x1-3/4x3/16	6.56	6.11	141.3	0.3779	0.04	16.44	0.003 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 1.5 STD	6.47	6.11	117.8	0.7995	4.84	35.98	0.135 [1]
T12	22.3334 - 2	ROHN 1.5 STD	7.01	6.65	128.1	0.7995	5.33	35.98	0.148 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2 STD	11.78	11.06	168.7	1.0745	4.41	48.35	0.091 [1]
T12	22.3334 - 2	ROHN 2 STD	12.02	11.35	173.1	1.0745	4.58	48.35	0.095 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 1.5 STD	6.47	6.47	124.7	0.7995	0.02	35.98	0.000 [1]
T12	22.3334 - 2	ROHN 1.5 STD	7.01	7.01	135.1	0.7995	0.01	35.98	0.000 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	Rohn 2.5 STD	15.37	15.37	194.7	1.7040	0.07	76.68	0.001 [1]
T12	22.3334 - 2	Rohn 2.5 STD	16.05	16.05	203.3	1.7040	0.07	76.68	0.001 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42.6667 - 22.3334	ROHN 2 STD	12.94	12.94	197.3	1.0745	0.00	48.35	0.000 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	244.917 - 224.792	Leg	ROHN 2.5 STD	3	-16.02	66.58	24.1	Pass

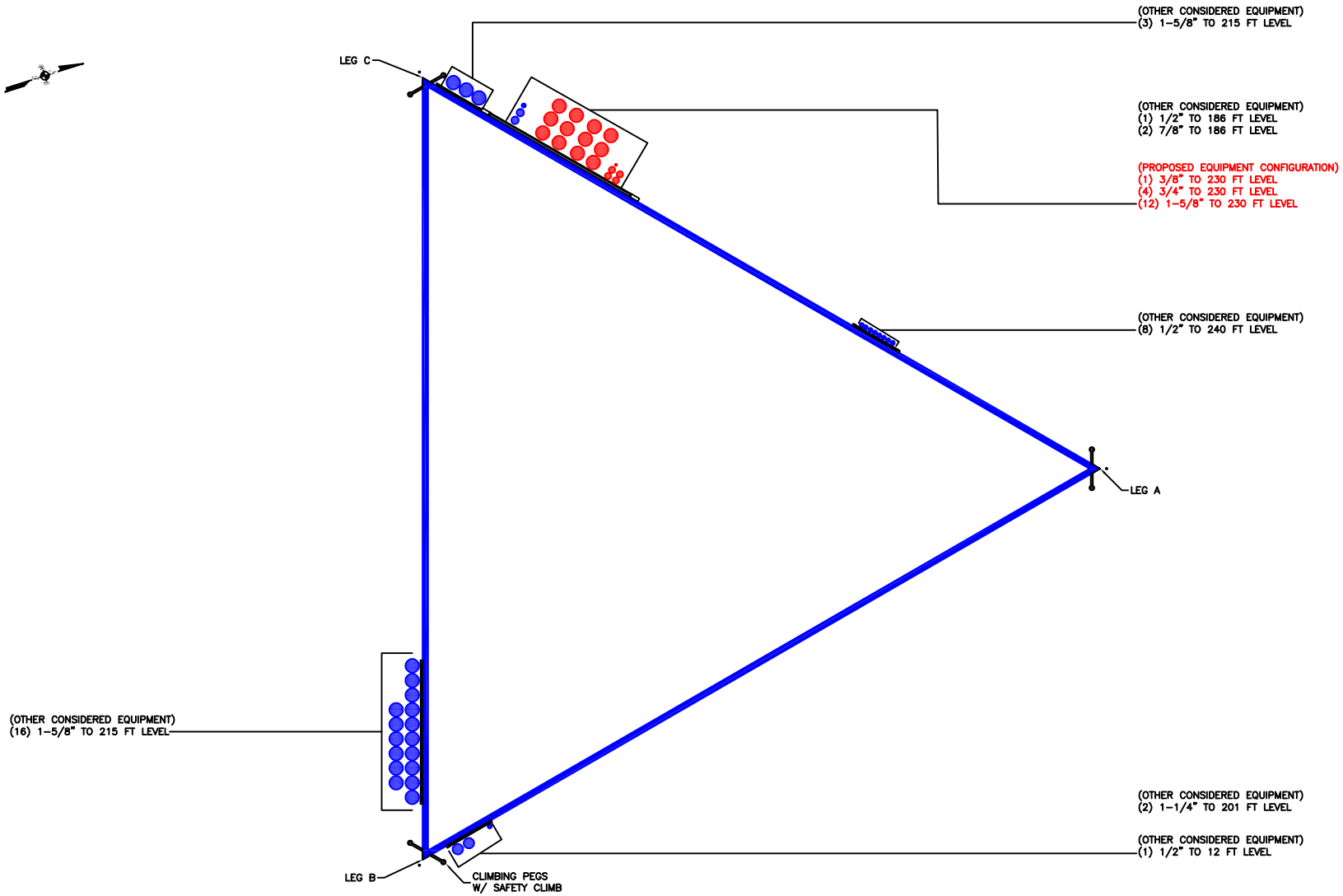
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T2	224.792 - 204.625	Leg	ROHN 3 EH	39	-45.93	115.74	39.7	Pass
T3	204.625 - 184.438	Leg	ROHN 3.5 EH	69	-74.24	131.32	56.5	Pass
T4	184.438 - 164.229	Leg	ROHN 4 EH	90	-103.19	167.14	61.7	Pass
T5	164.229 - 144.021	Leg	ROHN 5 EH	111	-131.94	250.61	52.6	Pass
T6	144.021 - 123.813	Leg	ROHN 5 EH	132	-157.78	209.91	75.2	Pass
T7	123.813 - 103.604	Leg	ROHN 6 EH	147	-186.12	317.44	58.6	Pass
T8	103.604 - 83.3333	Leg	ROHN 6 EH	162	-214.93	317.01	67.8	Pass
T9	83.3333 - 63	Leg	ROHN 6 EH	177	-243.98	316.57	77.1	Pass
T10	63 - 42.6667	Leg	ROHN 8 EHS	192	-273.24	404.01	67.6	Pass
T11	42.6667 - 22.3334	Leg	ROHN 8 EHS	207	-279.00	404.01	69.1	Pass
T12	22.3334 - 2	Leg	ROHN 8 EH	240	-307.42	529.11	58.1	Pass
T1	244.917 - 224.792	Diagonal	L1-3/4x1-3/4x3/16	11	-3.76	11.77	31.9 61.8 (b)	Pass
T2	224.792 - 204.625	Diagonal	L1-3/4x1-3/4x3/16	47	-4.25	6.64	63.9 74.7 (b)	Pass
T3	204.625 - 184.438	Diagonal	L2-1/2x2-1/2x3/16	74	-4.75	12.21	38.9 73.0 (b)	Pass
T4	184.438 - 164.229	Diagonal	L2-1/2x2-1/2x1/4	94	-5.36	12.04	44.5 61.1 (b)	Pass
T5	164.229 - 144.021	Diagonal	L2-1/2x2-1/2x5/16	115	-5.99	11.52	52.0 55.5 (b)	Pass
T6	144.021 - 123.813	Diagonal	L 3 x 3 x 5/16	136	-7.25	13.67	53.0	Pass
T7	123.813 - 103.604	Diagonal	L3-1/2x3-1/2x1/4	151	-7.97	15.14	52.6 71.8 (b)	Pass
T8	103.604 - 83.3333	Diagonal	L 4 x 4 x 5/16	166	-8.81	23.53	37.5 52.7 (b)	Pass
T9	83.3333 - 63	Diagonal	L 4 x 4 x 5/16	181	-9.64	19.99	48.2 57.3 (b)	Pass
T10	63 - 42.6667	Diagonal	L 4 x 4 x 5/16	196	-10.41	17.40	59.9 62.1 (b)	Pass
T11	42.6667 - 22.3334	Diagonal	P3 STD	219	-18.28	32.58	56.1	Pass
T12	22.3334 - 2	Diagonal	P3 STD	252	-17.89	31.16	57.4	Pass
T11	42.6667 - 22.3334	Horizontal	ROHN 2.5 STD	215	-9.53	15.91	59.9	Pass
T12	22.3334 - 2	Horizontal	P3 STD	248	-9.91	26.65	37.2	Pass
T1	244.917 - 224.792	Top Girt	L 2 x 2 x 1/8	4	-0.35	4.27	8.3	Pass
T2	224.792 - 204.625	Top Girt	L1-3/4x1-3/4x3/16	40	-0.06	4.09	1.5	Pass
T11	42.6667 - 22.3334	Redund Horz 1 Bracing	ROHN 1.5 STD	220	-4.84	13.67	35.4	Pass
T12	22.3334 - 2	Redund Horz 1 Bracing	ROHN 1.5 STD	253	-5.33	11.55	46.2	Pass
T11	42.6667 - 22.3334	Redund Diag 1 Bracing	ROHN 2 STD	221	-4.41	8.96	49.2	Pass
T12	22.3334 - 2	Redund Diag 1 Bracing	ROHN 2 STD	254	-4.58	8.51	53.8	Pass
T11	42.6667 - 22.3334	Redund Hip 1 Bracing	ROHN 1.5 STD	222	-0.03	12.19	0.2	Pass
T12	22.3334 - 2	Redund Hip 1 Bracing	ROHN 1.5 STD	255	-0.02	10.40	0.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T11	42.6667 - 22.3334	Redund Hip Diagonal 1 Bracing	Rohn 2.5 STD	223	-0.08	10.66	0.8	Pass
T12	22.3334 - 2	Redund Hip Diagonal 1 Bracing	Rohn 2.5 STD	256	-0.08	9.78	0.8	Pass
T11	42.6667 - 22.3334	Inner Bracing	ROHN 2 STD	236	-0.01	6.55	0.5	Pass
T12	22.3334 - 2	Inner Bracing	P3 STD	268	-0.02	25.30	0.4	Pass

Summary	ELC:	Load Case 7
Leg (T9)	77.1	Pass
Diagonal (T2)	74.7	Pass
Horizontal (T11)	59.9	Pass
Top Girt (T1)	8.3	Pass
Redund Horz 1 Bracing (T12)	46.2	Pass
Redund Diag 1 Bracing (T12)	53.8	Pass
Redund Hip 1 Bracing (T11)	0.2	Pass
Redund Hip Diagonal 1 Bracing (T12)	0.8	Pass
Inner Bracing (T11)	0.5	Pass
Bolt Checks	74.7	Pass
Rating =	77.1	Pass

APPENDIX B

BASE LEVEL DRAWING



CROWN REGION ADDRESS

USA

WJT	UPDATED PER WORK ORDER 1662262	28/11/18	
NK	UPDATED PER WORK ORDER 1662288	05/03/19	
BMT	UPDATED PER WORK ORDER 1740572	10/05/19	
SMB	UPDATED PER WORK ORDER 1786433	06/09/19	
CJR	UPDATED PER WORK ORDER 1792025	17/09/19	
SMB	UPDATED PER WORK ORDER 1810821	19/11/19	
SLM	UPDATED PER WORK ORDER 1811299	19/11/19	
ST	UPDATED PER WORK ORDER 1812247 1813555	03/12/19	
ST	UPDATED PER WORK ORDER 1804332	28/05/20	

DRAWN BY: VJL
CHECKED BY: AGT
DRAWING DATE: 18/03/14

SITE NUMBER:
SITE NAME:

SITE NAME

MONROE-GUINEA ROAD

BUSINESS UNIT NUMBER

841294

SITE ADDRESS

230 GUINEA ROAD
MONROE, CT 06468
FAIRFIELD COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

N.T.S.

PLOT DATE: 11/1/2016 FILE NAME: 841294_BASELEVEL.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

CCIplate

Project Information

BU #	841294
Site Name	MONROE-GUINEA ROAD
Order #	517061 Rev 0

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)		279.00
Shear (k)		31.00

Anchor Rod Data

Quantity:	10	
Diameter (in):	1	
Material Grade:	A354-BC	Fy=109 ksi Fu=125 ksi
Grout Considered:	Yes	Not Considered, lar<=1(d)
l_{ar} (in):	0	
Eta Factor, η:		
Thread Type:	N-Included	
Configuration:	Symmetrical	

Anchor Rod Results

Axial, Pu_t (kips)	27.90
Shear, Vu (kips)	3.10
Moment, Mu (kip-in)	-
Axial Cap., φPn_t (kips)	56.81
Shear Cap., ϕVn (kips)	36.82
Moment Cap., ϕMn (kip-in)	-
Stress Rating	23.6%

Pass

Drilled Pier Foundation

BU # :	841294
Site Name:	MONROE-GUINEA RC
Order Number:	517061 Rev 0

TIA-222 Revison:	H
Tower Type:	Self Support

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)		
Axial Force (kips)	334	279
Shear Force (kips)	36	31

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	20	ft
Ext. Above Grade	2	ft
Pier Section 1		
From 2' above grade to 5' below grade		
Pier Diameter	4	ft
Rebar Quantity	12	
Rebar Size	9	
Clear Cover to Ties	8.5	in
Tie Size	4	
Pier Section 2		
From 5' below grade to 20' below grade		
Pier Diameter	3.5	ft
Rebar Quantity	12	
Rebar Size	9	
Clear Cover to Ties	6.5	in
Tie Size	4	

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results

Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	643.34	428.89
End Bearing (kips)	453.30	-
Weight of Concrete (kips)	41.81	31.36
Total Capacity (kips)	1096.64	460.25
Axial (kips)	375.81	279.00
Rating*	*32.6%*	*57.7%*

Soil Interaction Rating*	**57.7%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐

Soil Profile

Groundwater Depth	NA	# of Layers	3

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.5	3.5	120	150			0.000	0.000					Cohesionless
2	3.5	7	3.5	120	150		34	0.000	0.000	0.00	0.00			Cohesionless
3	7	20	13	150	150	10		4.500	4.500	6.00	4.00	62.82		Cohesive

Caisson Foundation LPile Summary

MONROE-GUINEA ROAD BU #: 841294

2020777.841294.15

Reinforcement Check			
Allowable Stress Ratio =	1.00		
Apply TIA-222-H Section 15.5?	Yes		
Case 1 - Uplift			
Nominal Moment Capacity (Mn) =	7612.4	k-in	
=	634.4	k-ft	
ϕ =	0.9		
Factored Moment Capacity (ϕMn) =	570.93	k-ft	
Maximum Bending Moment (Mu) =	3059750	in-lbs	
=	255.0	k-ft	
Mu/ϕMn =	**42.5%**		**OK**
Case 2 - Compression			
Nominal Moment Capacity (Mn) =	15782.1	k-in	
=	1315.2	k-ft	
ϕ =	0.9		
Factored Moment Capacity (ϕMn) =	1183.66	k-ft	
Maximum Bending Moment (Mu) =	4019135	in-lbs	
=	334.9	k-ft	
Mu/ϕMn =	**26.9%**		**OK**

Deflection Check		
Load Type	Design	
Allowable Deflection	1.5	in
Max Deflection from LPILE	0.5041	in
Deflections are Acceptable		

LPile for Windows, Version 2019-11.001

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Crown\841294\15\5_Structural\00_Structure\00_Rev 0\01_Calcs\

Name of input data file:
841294 Lpile.lp11

Name of output report file:
841294 Lpile.lp11

Name of plot output file:
841294 Lpile.lp11

Name of runtime message file:
841294 Lpile.lp11

Date and Time of Analysis

Date: June 4, 2020 Time: 15:02:18

Problem Title

Project Name: BU #: 841294 MONROE-GUINEA ROAD

Job Number: 2020777.841294.14

Client: Crown Castle Inc

Engineer:NT

Description:

Program Options and Settings

Computational Options:
 - Use unfactored loads in computations (conventional analysis)
Engineering Units Used for Data Input and Computations:
 - US Customary System Units (pounds, feet, inches)

Analysis Control Options:
 - Maximum number of iterations allowed = 1000
 - Deflection tolerance for convergence = 1.0000E-04 in
 - Maximum allowable deflection = 100.0000 in
 - Number of pile increments = 100

Loading Type and Number of Cycles of Loading:
 - Static loading specified

 - Use of p-y modification factors for p-y curves not selected
 - Analysis uses layering correction (Method of Georgiadis)
 - No distributed lateral loads are entered
 - Loading by lateral soil movements acting on pile not selected
 - Input of shear resistance at the pile tip not selected
 - Input of moment resistance at the pile tip not selected
 - Computation of pile-head foundation stiffness matrix not selected
 - Push-over analysis of pile not selected
 - Buckling analysis of pile not selected

Output Options:
 - Output files use decimal points to denote decimal symbols.
 - Values of pile-head deflection, bending moment, shear force, and
   soil reaction are printed for full length of pile.
 - Printing Increment (nodal spacing of output points) = 1
 - No p-y curves to be computed and reported for user-specified depths
 - Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 22.000 ft
Depth of ground surface below top of pile = 2.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over
the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	42.0000
2	22.000	42.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile
Length of section = 22.000000 ft
Shaft Diameter = 42.000000 in
Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 3 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 2.000000 ft
Distance from top of pile to bottom of layer = 5.500000 ft
Effective unit weight at top of layer = 120.000000 pcf
Effective unit weight at bottom of layer = 120.000000 pcf
Friction angle at top of layer = 0.010000 deg.
Friction angle at bottom of layer = 0.010000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Default values for subgrade k will be computed for this layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 5.500000 ft
Distance from top of pile to bottom of layer = 9.000000 ft
Effective unit weight at top of layer = 120.000000 pcf
Effective unit weight at bottom of layer = 120.000000 pcf
Friction angle at top of layer = 34.000000 deg.
Friction angle at bottom of layer = 34.000000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Default values for subgrade k will be computed for this layer.

Layer 3 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer = 9.000000 ft
Distance from top of pile to bottom of layer = 22.000000 ft
Effective unit weight at top of layer = 150.000000 pcf
Effective unit weight at bottom of layer = 150.000000 pcf
Undrained cohesion at top of layer = 10000. psf
Undrained cohesion at bottom of layer = 10000. psf
Epsilon-50 at top of layer = 0.0000

Epsilon-50 at bottom of layer = 0.0000

NOTE: Default values for Epsilon-50 will be computed for this layer.

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside the limits of
20 pcf to 140 pcf.

The maximum input value, in layer 3, for effective unit weight = 150.00 pcf

This data may be erroneous. Please check your data.

Summary of Input Soil Properties

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Sand	2.0000	120.0000	--	0.01000	--	default
	(Reese, et al.)	5.5000	120.0000	--	0.01000	--	default
2	Sand	5.5000	120.0000	--	34.0000	--	default
	(Reese, et al.)	9.0000	120.0000	--	34.0000	--	default
3	Soft	9.0000	150.0000	10000.	--	default	--
	Clay	22.0000	150.0000	10000.	--	default	--

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	1	V = 31000. lbs	M = 0.0000 in-lbs	-279000.	No
2	1	V = 36000. lbs	M = 0.0000 in-lbs	334000.	No

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with
specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	22.000000 ft
Shaft Diameter	=	42.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	3.000000 in
Number of Reinforcing Bars	=	12 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	1385. sq. in.
Total Area of Reinforcing Steel	=	12.000000 sq. in.
Area Ratio of Steel Reinforcement	=	0.87 percent
Edge-to-Edge Bar Spacing	=	7.897538 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	10.53
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	4222.278 kips
Tensile Load for Cracking of Concrete	=	-537.570 kips
Nominal Axial Tensile Capacity	=	-720.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.128000	1.000000	17.436000	0.00000
2	1.128000	1.000000	15.100019	8.718000
3	1.128000	1.000000	8.718000	15.100019
4	1.128000	1.000000	0.00000	17.436000
5	1.128000	1.000000	-8.718000	15.100019
6	1.128000	1.000000	-15.100019	8.718000
7	1.128000	1.000000	-17.436000	0.00000
8	1.128000	1.000000	-15.100019	-8.718000
9	1.128000	1.000000	-8.718000	-15.100019
10	1.128000	1.000000	0.00000	-17.436000
11	1.128000	1.000000	8.718000	-15.100019
12	1.128000	1.000000	15.100019	-8.718000

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 7.898 inches
between bars 7 and 8.

Ratio of bar spacing to maximum aggregate size = 10.53

Concrete Properties:

Compressive Strength of Concrete	=	3000. psi
Modulus of Elasticity of Concrete	=	3122019. psi

Modulus of Rupture of Concrete = -410.791918 psi
Compression Strain at Peak Stress = 0.001634
Tensile Strain at Fracture of Concrete = -0.0001160
Maximum Coarse Aggregate Size = 0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 2

Number	Axial Thrust Force kips
1	-279.000
2	334.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = -279.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
6.25000E-07	368.4202213	589472354.	-63.0643576	-0.00003942	-0.00006567	-0.1434945	-1.8471977	
0.00000125	736.8211491	589456919.	-21.0625887	-0.00002633	-0.00007883	-0.0968719	-2.1718313	
0.00000188	736.8211491	392971280.	-406.5860088	-0.0007623	-0.0008411	0.00000	-24.2205830	C
0.00000250	1474.	589404045.	-0.0921235	-2.30309E-07	-0.0001052	-0.0027736	-2.8233039	
0.00000313	1474.	471523236.	-235.5515260	-0.0007361	-0.0008673	0.00000	-24.8676383	C
0.00000375	1474.	392936030.	-192.7929053	-0.0007230	-0.0008805	0.00000	-25.1911659	C
0.00000438	1474.	336802311.	-162.2510334	-0.0007098	-0.0008936	0.00000	-25.5146936	C
0.00000500	1474.	294702023.	-139.3446295	-0.0006967	-0.0009067	0.00000	-25.8382213	C
0.00000563	1474.	261957353.	-121.5285375	-0.0006836	-0.0009198	0.00000	-26.1617489	C
0.00000625	1474.	235761618.	-107.2756639	-0.0006705	-0.0009330	0.00000	-26.4852764	C
0.00000688	1474.	214328744.	-95.6142219	-0.0006573	-0.0009461	0.00000	-26.8088043	C
0.00000750	1474.	196468015.	-85.8963536	-0.0006442	-0.0009592	0.00000	-27.1323319	C
0.00000813	1474.	181355091.	-77.6735419	-0.0006311	-0.0009723	0.00000	-27.4558597	C
0.00000875	1474.	168401156.	-70.6254176	-0.0006180	-0.0009855	0.00000	-27.7793870	C
0.00000938	1474.	157174412.	-64.5170433	-0.0006048	-0.0009986	0.00000	-28.1029150	C
0.00001000	1474.	147351011.	-59.1722157	-0.0005917	-0.0010117	0.00000	-28.4264427	C
0.00001063	1474.	138683305.	-54.4561913	-0.0005786	-0.0010248	0.00000	-28.7499700	C
0.00001125	1474.	130978677.	-50.2641697	-0.0005655	-0.0010380	0.00000	-29.0734978	C
0.00001188	1474.	124085062.	-46.5134135	-0.0005523	-0.0010511	0.00000	-29.3970254	C
0.00001250	1474.	117880809.	-43.1377329	-0.0005392	-0.0010642	0.00000	-29.7205531	C
0.00001313	1474.	112267437.	-40.0835457	-0.0005261	-0.0010773	0.00000	-30.0440808	C
0.00001375	1474.	107164372.	-37.3070119	-0.0005130	-0.0010905	0.00000	-30.3676085	C
0.00001438	1474.	102505051.	-34.7719158	-0.0004998	-0.0011036	0.00000	-30.6911361	C
0.00001500	1474.	98234008.	-32.4480777	-0.0004867	-0.0011167	0.00000	-31.0146638	C
0.00001563	1474.	94304647.	-30.3101467	-0.0004736	-0.0011298	0.00000	-31.3381915	C
0.00001625	1474.	90677545.	-28.3366719	-0.0004605	-0.0011430	0.00000	-31.6617191	C
0.00001688	1474.	87319118.	-26.5093804	-0.0004473	-0.0011561	0.00000	-31.9852467	C
0.00001750	1474.	84200578.	-24.8126098	-0.0004342	-0.0011692	0.00000	-32.3087745	C
0.00001813	1474.	81297110.	-23.2328578	-0.0004211	-0.0011823	0.00000	-32.6323021	C

0.00001875	1474.	78587206.	-21.7584226	-0.0004080	-0.0011955	0.00000	-32.9558298 C
0.00001938	1474.	76052135.	-20.3791122	-0.0003948	-0.0012086	0.00000	-33.2793573 C
0.00002000	1474.	73675506.	-19.0860088	-0.0003817	-0.0012217	0.00000	-33.6028850 C
0.00002063	1474.	71442915.	-17.8712752	-0.0003686	-0.0012348	0.00000	-33.9264127 C
0.00002125	1474.	69341652.	-16.7279966	-0.0003555	-0.0012480	0.00000	-34.2499404 C
0.00002188	1474.	67360462.	-15.6500482	-0.0003423	-0.0012611	0.00000	-34.5734680 C
0.00002250	1474.	65489338.	-14.6319858	-0.0003292	-0.0012742	0.00000	-34.8969957 C
0.00002313	1474.	63719356.	-13.6689538	-0.0003161	-0.0012873	0.00000	-35.2205233 C
0.00002375	1474.	62042531.	-12.7566077	-0.0003030	-0.0013005	0.00000	-35.5440509 C
0.00002438	1474.	60451697.	-11.8910486	-0.0002898	-0.0013136	0.00000	-35.8675786 C
0.00002563	1474.	57502834.	-10.2865975	-0.0002636	-0.0013398	0.00000	-36.5146340 C
0.00002688	1474.	54828283.	-8.8313977	-0.0002373	-0.0013661	0.00000	-37.1616893 C
0.00002813	1488.	52907068.	-7.5055490	-0.0002111	-0.0013923	0.00000	-37.8087446 C
0.00002938	1554.	52906984.	-6.2925385	-0.0001848	-0.0014186	0.00000	-38.4557999 C
0.00003063	1620.	52906907.	-5.1785492	-0.0001586	-0.0014448	0.00000	-39.1028552 C
0.00003188	1686.	52906836.	-4.1519317	-0.0001323	-0.0014711	0.00000	-39.7499105 C
0.00003313	1753.	52906771.	-3.2027947	-0.0001061	-0.0014973	0.00000	-40.3969659 C
0.00003438	1819.	52906710.	-2.3226859	-0.00007984	-0.0015236	0.00000	-41.0440211 C
0.00003563	1885.	52906654.	-1.5043391	-0.00005359	-0.0015498	0.00000	-41.6910765 C
0.00003688	1951.	52906601.	-0.7414734	-0.00002734	-0.0015761	0.00000	-42.3381318 C
0.00003813	2017.	52906552.	-0.0286317	-0.00000109	-0.0016023	0.00000	-42.9851871 C
0.00003938	2086.	52981091.	0.6286413	0.00002475	-0.0016290	0.0602397	-43.6440139 C
0.00004063	2166.	53328170.	1.2062766	0.00004900	-0.0016572	0.1468169	-44.3490115 C
0.00004188	2257.	53891306.	1.7148885	0.00007181	-0.0016869	0.2269953	-45.0959515 C
0.00004313	2356.	54627377.	2.1631415	0.00009329	-0.0017180	0.3013949	-45.8815034 C
0.00004438	2462.	55487887.	2.5604499	0.0001136	-0.0017501	0.3708643	-46.7001159 C
0.00004563	2575.	56427805.	2.9157745	0.0001330	-0.0017832	0.4362974	-47.5454729 C
0.00004688	2691.	57408278.	3.2372551	0.0001517	-0.0018170	0.4985652	-48.4110752 C
0.00004813	2811.	58413518.	3.5292975	0.0001698	-0.0018514	0.5580365	-49.2944553 C
0.00004938	2935.	59444593.	3.7931254	0.0001873	-0.0018865	0.6146213	-50.1970621 C
0.00005063	3060.	60449726.	4.0393272	0.0002045	-0.0019218	0.6697895	-51.1064189 C
0.00005188	3188.	61464652.	4.2629966	0.0002211	-0.0019576	0.7225417	-52.0318231 C
0.00005313	3318.	62447992.	4.4728704	0.0002376	-0.0019936	0.7741403	-52.9622654 C
0.00005438	3449.	63427199.	4.6651552	0.0002537	-0.0020301	0.8237974	-53.9052269 C
0.00005563	3580.	64362946.	4.8484368	0.0002697	-0.0020666	0.8728322	-54.8487715 C
0.00005688	3714.	65301673.	5.0147048	0.0002852	-0.0021035	0.9197503	-55.8070899 C
0.00005813	3848.	66195003.	5.1745897	0.0003008	-0.0021405	0.9662803	-56.7641134 C
0.00005938	3982.	67068412.	5.3237769	0.0003161	-0.0021777	1.0115800	-57.7279655 C
0.00006063	4118.	67922124.	5.4631535	0.0003312	-0.0022150	1.0557137	-58.6982493 C
0.00006188	4253.	68736874.	5.5975821	0.0003464	-0.0022524	1.0994757	-59.6673071 C
0.00006313	4384.	69453034.	5.7203265	0.0003611	-0.0022902	1.1415790	-60.0000000 CY
0.00006438	4502.	69937620.	5.8239012	0.0003749	-0.0023288	1.1805597	-60.0000000 CY
0.00006563	4612.	70280401.	5.9177903	0.0003884	-0.0023679	1.2180611	-60.0000000 CY
0.00006688	4722.	70607683.	6.0086507	0.0004018	-0.0024069	1.2552620	-60.0000000 CY
0.00006813	4830.	70895551.	6.0949330	0.0004152	-0.0024460	1.2918358	-60.0000000 CY
0.00006938	4922.	70951202.	6.1617449	0.0004275	-0.0024863	1.3249083	-60.0000000 CY
0.00007063	4990.	70649799.	6.2076860	0.0004384	-0.0025278	1.3541037	-60.0000000 CY
0.00007188	5049.	70244368.	6.2461366	0.0004489	-0.0025698	1.3819003	-60.0000000 CY
0.00007313	5108.	69850172.	6.2834031	0.0004595	-0.0026118	1.4094856	-60.0000000 CY
0.00007438	5167.	69468353.	6.3196400	0.0004700	-0.0026537	1.4368778	-60.0000000 CY
0.00007938	5402.	68053024.	6.4552958	0.0005124	-0.0028214	1.5444979	-60.0000000 CY
0.00008438	5636.	66798676.	6.5736880	0.0005547	-0.0029891	1.6480331	-60.0000000 CY
0.00008938	5860.	65569681.	6.6714268	0.0005963	-0.0031575	1.7461776	-60.0000000 CY
0.00009438	5974.	63301078.	6.6827518	0.0006307	-0.0033331	1.8241767	-60.0000000 CY
0.00009938	6064.	61022496.	6.6781427	0.0006636	-0.0035101	1.8963983	-60.0000000 CY
0.0001044	6154.	58958848.	6.6751790	0.0006967	-0.0036870	1.9666021	-60.0000000 CY
0.0001094	6243.	57080594.	6.6736579	0.0007299	-0.0038638	2.0347660	-60.0000000 CY
0.0001144	6332.	55363364.	6.6734132	0.0007633	-0.0040405	2.1008673	-60.0000000 CY
0.0001194	6421.	53786870.	6.6743072	0.0007967	-0.0042170	2.1648830	-60.0000000 CY
0.0001244	6509.	52334086.	6.6762253	0.0008304	-0.0043934	2.2267891	-60.0000000 CY
0.0001294	6597.	50990614.	6.6790712	0.0008641	-0.0045696	2.2865609	-60.0000000 CY
0.0001344	6684.	49744198.	6.6827642	0.0008980	-0.0047458	2.3441728	-60.0000000 CY
0.0001394	6771.	48578001.	6.6865197	0.0009319	-0.0049218	2.3994347	-60.0000000 CY
0.0001444	6842.	47391480.	6.6795968	0.0009644	-0.0050994	2.4499017	-60.0000000 CY
0.0001494	6881.	46065564.	6.6480705	0.0009931	-0.0052807	2.4925134	-60.0000000 CY
0.0001544	6904.	44723404.	6.6067816	0.0010199	-0.0054638	2.5307640	-60.0000000 CY
0.0001594	6926.	43456768.	6.5675756	0.0010467	-0.0056470	2.5674032	-60.0000000 CY

0.0001644	6948.	42266349.	6.5312156	0.0010736	-0.0058302	2.6026545	-60.0000000 CY
0.0001694	6969.	41144676.	6.4962413	0.0011003	-0.0060134	2.6362430	-60.0000000 CY
0.0001744	6990.	40085438.	6.4617980	0.0011268	-0.0061970	2.6680344	-60.0000000 CY
0.0001794	7011.	39084514.	6.4297165	0.0011533	-0.0063804	2.6984645	-60.0000000 CY
0.0001844	7032.	38137151.	6.3998108	0.0011800	-0.0065638	2.7275211	-60.0000000 CY
0.0001894	7052.	37239096.	6.3719150	0.0012067	-0.0067471	2.7551914	-60.0000000 CY
0.0001944	7073.	36386535.	6.3458801	0.0012335	-0.0069303	2.7814626	-60.0000000 CY
0.0001994	7093.	35576034.	6.3215726	0.0012604	-0.0071134	2.8063215	-60.0000000 CY
0.0002044	7113.	34804498.	6.2988720	0.0012873	-0.0072964	2.8297546	-60.0000000 CY
0.0002094	7133.	34069124.	6.2776697	0.0013144	-0.0074794	2.8517481	-60.0000000 CY
0.0002144	7153.	33367374.	6.2578672	0.0013415	-0.0076622	2.8722877	-60.0000000 CY
0.0002194	7173.	32696937.	6.2393753	0.0013688	-0.0078450	2.8913591	-60.0000000 CY
0.0002244	7192.	32055710.	6.2221130	0.0013961	-0.0080277	2.9089473	-60.0000000 CY
0.0002294	7212.	31441774.	6.2060066	0.0014235	-0.0082102	2.9250371	-60.0000000 CY
0.0002344	7231.	30853372.	6.1909888	0.0014510	-0.0083927	2.9396128	-60.0000000 CY
0.0002394	7250.	30288893.	6.1769982	0.0014786	-0.0085751	2.9526585	-60.0000000 CY
0.0002444	7269.	29746859.	6.1639786	0.0015063	-0.0087574	2.9641577	-60.0000000 CY
0.0002494	7288.	29225909.	6.1518787	0.0015341	-0.0089396	2.9740934	-60.0000000 CY
0.0002544	7307.	28724791.	6.1406513	0.0015620	-0.0091217	2.9824484	-60.0000000 CY
0.0002594	7325.	28242345.	6.1302531	0.0015900	-0.0093037	2.9892046	-60.0000000 CY
0.0002644	7344.	27777503.	6.1206444	0.0016181	-0.0094856	2.9943437	-60.0000000 CY
0.0002694	7362.	27329274.	6.1117888	0.0016464	-0.0096674	2.9978468	-60.0000000 CY
0.0002744	7380.	26896738.	6.1036526	0.0016747	-0.0098491	2.9996944	-60.0000000 CY
0.0003044	7483.	24586355.	6.0661339	0.0018464	-0.0109374	2.9956246	-60.0000000 CY
0.0003344	7557.	22601272.	6.0177319	0.0020122	-0.0120316	2.9942823	-60.0000000 CY
0.0003644	7580.	20802963.	5.9264033	0.0021594	-0.0131443	2.9998930	-60.0000000 CY
0.0003944	7588.	19240811.	5.8384099	0.0023025	-0.0142612	2.9934372	-60.0000000 CY
0.0004244	7595.	17897013.	5.7665372	0.0024472	-0.0153766	2.9976015	-60.0000000 CY
0.0004544	7601.	16728339.	5.7079818	0.0025936	-0.0164902	2.9909745	-60.0000000 CY
0.0004844	7606.	15702780.	5.6571290	0.0027402	-0.0176036	2.9998301	-60.0000000 CY
0.0005144	7610.	14794213.	5.6091713	0.0028852	-0.0187185	2.9868200	-60.0000000 CY
0.0005444	7613.	13985112.	5.5682825	0.0030312	-0.0198325	2.9912011	-60.0000000 CYT
0.0005744	7616.	13259958.	5.5332632	0.0031782	-0.0209456	2.9993826	-60.0000000 CYT
0.0006044	7619.	12606001.	5.5038131	0.0033264	-0.0220574	2.9910964	-60.0000000 CYT
0.0006344	7621.	12013447.	5.4784877	0.0034754	-0.0231683	2.9771487	-60.0000000 CYT
0.0006644	7623.	11474123.	5.4564189	0.0036251	-0.0242786	2.9884792	-60.0000000 CYT
0.0006944	7625.	10981118.	5.4372287	0.0037755	-0.0253883	2.9976865	-60.0000000 CYT
0.0007244	7627.	10528613.	5.4207507	0.0039267	-0.0264971	2.9976494	-60.0000000 CYT

Axial Thrust Force = 334.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
6.25000E-07	366.1758073	585881292.	121.9418046	0.00007621	0.00004996	0.2729402	2.1531015	
0.00000125	732.3391879	585871350.	71.5015145	0.00008938	0.00003688	0.3183860	2.4777424	
0.00000188	1098.	585850721.	54.7016883	0.0001026	0.00002382	0.3635378	2.8031231	
0.00000250	1465.	585820926.	46.3119793	0.0001158	0.00001078	0.4083933	3.1292435	
0.00000313	1831.	585782179.	41.2863175	0.0001290	-0.00000223	0.4529504	3.4561038	
0.00000375	2196.	585691966.	37.9422580	0.0001423	-0.00001522	0.4972013	3.7836580	
0.00000438	2561.	585441187.	35.5577491	0.0001556	-0.00002818	0.5411242	4.1117332	
0.00000500	2925.	585003210.	33.7719207	0.0001689	-0.00004114	0.5847003	4.4401785	
0.00000563	3287.	584396396.	32.3846039	0.0001822	-0.00005409	0.6279174	4.7688948	
0.00000625	3648.	583648514.	31.2758867	0.0001955	-0.00006703	0.6707673	5.0978170	
0.00000688	4007.	582785676.	30.3695711	0.0002088	-0.00007996	0.7132446	5.4269020	
0.00000750	4364.	581829600.	29.6149214	0.0002221	-0.00009289	0.7553457	5.7561204	
0.00000813	4719.	580797776.	28.9768534	0.0002354	-0.0001058	0.7970679	6.0854524	
0.00000875	4719.	539312221.	26.2926995	0.0002301	-0.0001374	0.7797007	5.8724600 C	
0.00000938	4719.	503358073.	25.5791305	0.0002398	-0.0001539	0.8099689	6.0979197 C	
0.00001000	4719.	471898193.	24.9376832	0.0002494	-0.0001706	0.8394972	6.3184281 C	
0.00001063	4719.	444139476.	24.3553164	0.0002588	-0.0001875	0.8682862	6.5338881 C	
0.00001125	4719.	419465061.	23.8254043	0.0002680	-0.0002045	0.8964581	6.7453507 C	
0.00001188	4719.	397387952.	23.3402225	0.0002772	-0.0002216	0.9240417	6.9530078 C	
0.00001250	4719.	377518555.	22.8936559	0.0002862	-0.0002388	0.9510675	7.1570752 C	
0.00001313	4719.	359541481.	22.4808211	0.0002951	-0.0002562	0.9775681	7.3577937 C	

0.00001375	4719.	343198686.	22.0977908	0.0003038	-0.0002737	1.0035778	7.5554315 C
0.00001438	4719.	328277004.	21.7413921	0.0003125	-0.0002912	1.0291336	7.7502866 C
0.00001500	4801.	320078753.	21.4091000	0.0003211	-0.0003089	1.0542765	7.9427085 C
0.00001563	4893.	313160901.	21.0989408	0.0003297	-0.0003266	1.0790537	8.1331138 C
0.00001625	4984.	306681718.	20.8088346	0.0003381	-0.0003444	1.1034916	-8.5018991 C
0.00001688	5072.	300562323.	20.5347143	0.0003465	-0.0003622	1.1275035	-8.9630430 C
0.00001750	5159.	294824903.	20.2778845	0.0003549	-0.0003801	1.1512469	-9.4253486 C
0.00001813	5246.	289407291.	20.0352569	0.0003631	-0.0003981	1.1746565	-9.8894993 C
0.00001875	5330.	284282800.	19.8054652	0.0003714	-0.0004161	1.1977387	-10.3554658 C
0.00001938	5414.	279448387.	19.5887504	0.0003795	-0.0004342	1.2205783	-10.8224145 C
0.00002000	5497.	274849682.	19.3820179	0.0003876	-0.0004524	1.2430719	-11.2914296 C
0.00002063	5579.	270501524.	19.1866424	0.0003957	-0.0004705	1.2653549	-11.7611457 C
0.00002125	5660.	266360942.	19.0000951	0.0004038	-0.0004887	1.2873386	-12.2325038 C
0.00002188	5741.	262423225.	18.8224935	0.0004117	-0.0005070	1.3090788	-12.7049494 C
0.00002250	5820.	258686536.	18.6540447	0.0004197	-0.0005253	1.3306360	-13.1778608 C
0.00002313	5899.	255099065.	18.4913939	0.0004276	-0.0005436	1.3518467	-13.6529902 C
0.00002375	5978.	251696666.	18.3375665	0.0004355	-0.0005620	1.3729387	-14.1279385 C
0.00002438	6056.	248436091.	18.1895854	0.0004434	-0.0005804	1.3937611	-14.6043305 C
0.00002563	6210.	242335527.	17.9123114	0.0004590	-0.0006172	1.4348018	-15.5593198 C
0.00002688	6362.	236723419.	17.6560238	0.0004745	-0.0006542	1.4749731	-16.5180553 C
0.00002813	6513.	231575554.	17.4213859	0.0004900	-0.0006913	1.5145400	-17.4777133 C
0.00002938	6662.	226786139.	17.2010797	0.0005053	-0.0007285	1.5531645	-18.4421739 C
0.00003063	6810.	222373842.	16.9991831	0.0005206	-0.0007657	1.5913129	-19.4062566 C
0.00003188	6956.	218242912.	16.8081907	0.0005358	-0.0008030	1.6285614	-20.3748974 C
0.00003313	7102.	214414237.	16.6323069	0.0005509	-0.0008403	1.6653671	-21.3428714 C
0.00003438	7247.	210820012.	16.4658828	0.0005660	-0.0008777	1.7013955	-22.3141669 C
0.00003563	7391.	207458020.	16.3104680	0.0005811	-0.0009152	1.7368740	-23.2861539 C
0.00003688	7534.	204314580.	16.1660782	0.0005961	-0.0009526	1.7719035	-24.2576187 C
0.00003813	7676.	201334226.	16.0272464	0.0006110	-0.0009902	1.8060950	-25.2334068 C
0.00003938	7817.	198535498.	15.8978038	0.0006260	-0.0010278	1.8398555	-26.2085389 C
0.00004063	7959.	195901574.	15.7768869	0.0006409	-0.0010653	1.8731830	-27.1830112 C
0.00004188	8098.	193396571.	15.6606498	0.0006558	-0.0011030	1.9057889	-28.1605672 C
0.00004313	8238.	191023786.	15.5507735	0.0006706	-0.0011406	1.9378806	-29.1385950 C
0.00004438	8377.	188778024.	15.4476012	0.0006855	-0.0011783	1.9695437	-30.1159618 C
0.00004563	8516.	186648798.	15.3505849	0.0007004	-0.0012159	2.0007763	-31.0926635 C
0.00004688	8654.	184611171.	15.2566028	0.0007152	-0.0012536	2.0313189	-32.0722743 C
0.00004813	8791.	182669075.	15.1672568	0.0007299	-0.0012913	2.0613631	-33.0522283 C
0.00004938	8928.	180819408.	15.0829030	0.0007447	-0.0013290	2.0909808	-34.0315119 C
0.00005063	9065.	179055281.	15.0031746	0.0007595	-0.0013667	2.1201699	-35.0101204 C
0.00005188	9201.	177370469.	14.9277403	0.0007744	-0.0014044	2.1489287	-35.9880493 C
0.00005313	9337.	175748913.	14.8542145	0.0007891	-0.0014421	2.1770418	-36.9685071 C
0.00005438	9472.	174193309.	14.7838487	0.0008039	-0.0014799	2.2046601	-37.9493121 C
0.00005563	9607.	172702394.	14.7170735	0.0008186	-0.0015176	2.2318512	-38.9294270 C
0.00005688	9741.	171271867.	14.6536549	0.0008334	-0.0015553	2.2586132	-39.9088465 C
0.00005813	9875.	169897792.	14.5933795	0.0008482	-0.0015930	2.2849441	-40.8875657 C
0.00005938	10009.	168576567.	14.5360519	0.0008631	-0.0016307	2.3108417	-41.8655792 C
0.00006063	10143.	167303473.	14.4811462	0.0008779	-0.0016683	2.3362677	-42.8434909 C
0.00006188	10276.	166069732.	14.4270659	0.0008927	-0.0017061	2.3610697	-43.8239021 C
0.00006313	10408.	164880210.	14.3755225	0.0009075	-0.0017438	2.3854409	-44.8035901 C
0.00006438	10540.	163732296.	14.3263713	0.0009223	-0.0017815	2.4093792	-45.7825492 C
0.00006563	10672.	162623577.	14.2794785	0.0009371	-0.0018192	2.4328824	-46.7607735 C
0.00006688	10804.	161551821.	14.2347207	0.0009519	-0.0018568	2.4559484	-47.7382570 C
0.00006813	10935.	160514959.	14.1919835	0.0009668	-0.0018944	2.4785750	-48.7149937 C
0.00006938	11066.	159511069.	14.1511606	0.0009817	-0.0019320	2.5007599	-49.6909774 C
0.00007063	11197.	158538367.	14.1121534	0.0009967	-0.0019696	2.5225009	-50.6662018 C
0.00007188	11327.	157595192.	14.0748704	0.0010116	-0.0020071	2.5437958	-51.6406605 C
0.00007313	11457.	156675926.	14.0378914	0.0010265	-0.0020447	2.5645056	-52.6171777 C
0.00007438	11586.	155782838.	14.0023172	0.0010414	-0.0020823	2.5847508	-53.5933456 C
0.00007938	12101.	152452753.	13.8747093	0.0011013	-0.0022324	2.6612546	-57.4899970 C
0.00008438	12596.	149284799.	13.7628995	0.0011612	-0.0023825	2.7300385	-60.0000000 CY
0.00008938	13003.	145483949.	13.6422912	0.0012193	-0.0025345	2.7891746	-60.0000000 CY
0.00009438	13308.	141016079.	13.5016635	0.0012742	-0.0026895	2.8383812	-60.0000000 CY
0.00009938	13519.	136044994.	13.3486459	0.0013265	-0.0028472	2.8791214	-60.0000000 CY
0.0001044	13728.	131521155.	13.2127247	0.0013791	-0.0030047	2.9141135	-60.0000000 CY
0.0001094	13931.	127367892.	13.0867336	0.0014314	-0.0031624	2.9430024	-60.0000000 CY
0.0001144	14131.	123553652.	12.9749612	0.0014840	-0.0033197	2.9661326	-60.0000000 CY
0.0001194	14329.	120031666.	12.8755615	0.0015370	-0.0034767	2.9833747	-60.0000000 CY

0.0001244	14476.	116389346.	12.7666430	0.0015879	-0.0036359	2.9942002	-60.0000000 CY
0.0001294	14560.	112538336.	12.6409686	0.0016354	-0.0037983	2.9992803	-60.0000000 CY
0.0001344	14637.	108924247.	12.5251532	0.0016831	-0.0039607	2.9986112	-60.0000000 CY
0.0001394	14712.	105555909.	12.4200630	0.0017310	-0.0041227	2.9979890	-60.0000000 CY
0.0001444	14784.	102397167.	12.3203728	0.0017788	-0.0042850	2.9999540	-60.0000000 CY
0.0001494	14853.	99433392.	12.2278647	0.0018265	-0.0044472	2.9992044	-60.0000000 CY
0.0001544	14921.	96651425.	12.1434095	0.0018746	-0.0046091	2.9971115	-60.0000000 CY
0.0001594	14987.	94034306.	12.0662443	0.0019231	-0.0047707	2.9998456	-60.0000000 CY
0.0001644	15051.	91567083.	11.9957171	0.0019718	-0.0049320	2.9980667	-60.0000000 CY
0.0001694	15114.	89233165.	11.9281432	0.0020203	-0.0050934	2.9999774	-60.0000000 CY
0.0001744	15174.	87022055.	11.8645271	0.0020689	-0.0052549	2.9981354	-60.0000000 CY
0.0001794	15234.	84928908.	11.8058306	0.0021177	-0.0054161	2.9999650	-60.0000000 CY
0.0001844	15293.	82942554.	11.7519644	0.0021668	-0.0055770	2.9974559	-60.0000000 CY
0.0001894	15350.	81056595.	11.7021663	0.0022161	-0.0057377	2.9997799	-60.0000000 CY
0.0001944	15407.	79262391.	11.6563151	0.0022657	-0.0058981	2.9958755	-60.0000000 CY
0.0001994	15462.	77553863.	11.6139563	0.0023155	-0.0060582	2.9990020	-60.0000000 CY
0.0002044	15517.	75925423.	11.5747019	0.0023656	-0.0062182	2.9995010	-60.0000000 CY
0.0002094	15569.	74358183.	11.5362080	0.0024154	-0.0063784	2.9967736	-60.0000000 CY
0.0002144	15615.	72838328.	11.4953894	0.0024643	-0.0065394	2.9993202	-60.0000000 CY
0.0002194	15648.	71328180.	11.4492957	0.0025117	-0.0067021	2.9994133	-60.0000000 CY
0.0002244	15669.	69835467.	11.3993663	0.0025577	-0.0068660	2.9952034	-60.0000000 CY
0.0002294	15685.	68381792.	11.3484484	0.0026031	-0.0070307	2.9980120	-60.0000000 CY
0.0002344	15698.	66977567.	11.2983960	0.0026481	-0.0071957	2.9995903	-60.0000000 CY
0.0002394	15710.	65631048.	11.2509807	0.0026932	-0.0073605	2.9991689	-60.0000000 CY
0.0002444	15723.	64338179.	11.2062347	0.0027385	-0.0075252	2.9943354	-60.0000000 CY
0.0002494	15735.	63096598.	11.1636684	0.0027839	-0.0076898	2.9967096	-60.0000000 CY
0.0002544	15746.	61902388.	11.1223795	0.0028293	-0.0078545	2.9987806	-60.0000000 CY
0.0002594	15757.	60749580.	11.0793831	0.0028737	-0.0080200	2.9998208	-60.0000000 CY
0.0002644	15766.	59636712.	11.0395180	0.0029186	-0.0081852	2.9983211	60.0000000 CY
0.0002694	15775.	58562191.	11.0024035	0.0029638	-0.0083500	2.9939487	60.0000000 CY
0.0002744	15784.	57526486.	10.9669313	0.0030091	-0.0085147	2.9952538	60.0000000 CYT
0.0003044	15823.	51986068.	10.7972735	0.0032864	-0.0094973	2.9940181	60.0000000 CYT
0.0003344	15848.	47395650.	10.6752045	0.0035695	-0.0104742	2.9916797	60.0000000 CYT
0.0003644	15867.	43547010.	10.5708885	0.0038518	-0.0114520	2.9999992	60.0000000 CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	-279.000	7612.424	0.00300000
2	334.000	15782.102	0.00300000

Note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2

1	0.65	7612.	-181.350000	4948.	70835672.
2	0.65	15782.	217.100000	10258.	166229516.
1	0.75	7612.	-195.300000	5709.	66397441.
2	0.75	15782.	233.800000	11837.	154163523.
1	0.90	7612.	-209.250000	6851.	47083452.
2	0.90	15782.	250.500000	14204.	122260678.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	2.0000	0.00	N.A.	No	0.00	69.9721
2	5.5000	0.1867	Yes	No	69.9721	33414.
3	9.0000	0.3163	No	No	33484.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 31000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = -279000.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5041	-2.91E-04	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
0.2200	0.4915	78326.	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
0.4400	0.4789	156653.	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
0.6600	0.4663	234980.	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
0.8800	0.4537	313307.	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
1.1000	0.4411	391636.	31000.	-0.00477	0.00	5.89E+11	0.00	0.00	0.00
1.3200	0.4285	469966.	31000.	-0.00476	0.00	5.89E+11	0.00	0.00	0.00
1.5400	0.4160	548298.	31000.	-0.00476	0.00	5.89E+11	0.00	0.00	0.00
1.7600	0.4034	626631.	31000.	-0.00476	0.00	5.89E+11	0.00	0.00	0.00
1.9800	0.3908	704967.	31000.	-0.00476	0.00	5.89E+11	0.00	0.00	0.00
2.2000	0.3783	783305.	31000.	-0.00475	0.00	4.01E+11	-0.00335	0.02340	0.00
2.4200	0.3658	861646.	31000.	-0.00475	0.00	4.17E+11	-0.00681	0.04913	0.00
2.6400	0.3532	939992.	31000.	-0.00474	0.00	5.56E+11	-0.01002	0.07487	0.00
2.8600	0.3407	1018341.	31000.	-0.00474	0.00	5.66E+11	-0.01298	0.1006	0.00
3.0800	0.3282	1096693.	31000.	-0.00473	0.00	5.28E+11	-0.01571	0.1263	0.00
3.3000	0.3157	1175049.	31000.	-0.00473	0.00	5.79E+11	-0.01819	0.1521	0.00
3.5200	0.3033	1253409.	31000.	-0.00472	0.00	5.87E+11	-0.02042	0.1778	0.00
3.7400	0.2908	1331773.	31000.	-0.00472	0.00	5.83E+11	-0.02242	0.2035	0.00

3.9600	0.2784	1410141.	31000.	-0.00471	0.00	5.78E+11	-0.02417	0.2293	0.00
4.1800	0.2659	1488514.	31000.	-0.00470	0.00	3.41E+11	-0.02569	0.2550	0.00
4.4000	0.2535	1566895.	31000.	-0.00466	0.00	5.40E+10	-0.02696	0.2807	0.00
4.6200	0.2413	1645332.	30999.	-0.00458	0.00	5.29E+10	-0.02802	0.3065	0.00
4.8400	0.2294	1723830.	30999.	-0.00449	0.00	5.29E+10	-0.02886	0.3322	0.00
5.0600	0.2176	1802391.	30999.	-0.00440	0.00	5.29E+10	-0.02951	0.3579	0.00
5.2800	0.2061	1881018.	30999.	-0.00431	0.00	5.29E+10	-0.02996	0.3837	0.00
5.5000	0.1949	1959713.	30982.	-0.00422	0.00	5.29E+10	-12.9142	174.9673	0.00
5.7200	0.1839	2038391.	30868.	-0.00412	0.00	5.29E+10	-73.9033	1061.	0.00
5.9400	0.1731	2116629.	30619.	-0.00401	0.00	5.31E+10	-114.7534	1750.	0.00
6.1600	0.1627	2194144.	30262.	-0.00391	0.00	5.35E+10	-155.6647	2526.	0.00
6.3800	0.1525	2270654.	29797.	-0.00380	0.00	5.40E+10	-196.2152	3397.	0.00
6.6000	0.1426	2345879.	29227.	-0.00369	0.00	5.46E+10	-235.9895	4369.	0.00
6.8200	0.1330	2419542.	28553.	-0.00357	0.00	5.51E+10	-274.5798	5449.	0.00
7.0400	0.1238	2491377.	27779.	-0.00345	0.00	5.57E+10	-311.5871	6647.	0.00
7.2600	0.1148	2561127.	26908.	-0.00333	0.00	5.63E+10	-348.5411	8016.	0.00
7.4800	0.1062	2628536.	25941.	-0.00321	0.00	5.69E+10	-384.0266	9551.	0.00
7.7000	0.09783	2693359.	24882.	-0.00309	0.00	5.74E+10	-417.5432	11268.	0.00
7.9200	0.08983	2755363.	23739.	-0.00297	0.00	5.80E+10	-448.7942	13189.	0.00
8.1400	0.08217	2814331.	22516.	-0.00284	0.00	5.84E+10	-477.4945	15342.	0.00
8.3600	0.07484	2870065.	21221.	-0.00271	0.00	5.89E+10	-503.3711	17757.	0.00
8.5800	0.06785	2922386.	19862.	-0.00258	0.00	5.93E+10	-526.1641	20473.	0.00
8.8000	0.06120	2971135.	18448.	-0.00245	0.00	5.97E+10	-545.6285	23536.	0.00
9.0200	0.05490	3016178.	14746.	-0.00232	0.00	6.01E+10	-2259.	108611.	0.00
9.2400	0.04895	3045576.	8863.	-0.00219	0.00	6.03E+10	-2198.	118552.	0.00
9.4600	0.04336	3059750.	3143.	-0.00205	0.00	6.04E+10	-2134.	129971.	0.00
9.6800	0.03811	3059147.	-2403.	-0.00192	0.00	6.04E+10	-2067.	143190.	0.00
9.9000	0.03322	3044235.	-7766.	-0.00179	0.00	6.03E+10	-1996.	158627.	0.00
10.1200	0.02868	3015510.	-12937.	-0.00165	0.00	6.01E+10	-1921.	176836.	0.00
10.3400	0.02449	2973494.	-17903.	-0.00152	0.00	5.98E+10	-1842.	198566.	0.00
10.5600	0.02064	2918738.	-22656.	-0.00139	0.00	5.93E+10	-1758.	224851.	0.00
10.7800	0.01714	2851823.	-27181.	-0.00126	0.00	5.88E+10	-1670.	257164.	0.00
11.0000	0.01398	2773365.	-31465.	-0.00114	0.00	5.81E+10	-1576.	297663.	0.00
11.2200	0.01115	2684014.	-35495.	-0.00101	0.00	5.74E+10	-1477.	349655.	0.00
11.4400	0.00865	2584461.	-39253.	-8.88E-04	0.00	5.65E+10	-1370.	418469.	0.00
11.6600	0.00646	2475447.	-42720.	-7.69E-04	0.00	5.56E+10	-1256.	513290.	0.00
11.8800	0.00458	2357765.	-45872.	-6.53E-04	0.00	5.47E+10	-1131.	651501.	0.00
12.1000	0.00301	2232282.	-48676.	-5.42E-04	0.00	5.37E+10	-993.0158	870831.	0.00
12.3200	0.00173	2099958.	-51086.	-4.34E-04	0.00	5.30E+10	-832.7154	1274107.	0.00
12.5400	7.16E-04	1961908.	-53012.	-3.33E-04	0.00	5.29E+10	-626.6880	2309587.	0.00
12.7600	-3.43E-05	1819562.	-53526.	-2.39E-04	0.00	5.29E+10	237.6274	1.83E+07	0.00
12.9800	-5.45E-04	1678938.	-52440.	-1.52E-04	0.00	5.29E+10	585.2710	2833972.	0.00
13.2000	-8.35E-04	1542456.	-50769.	-7.13E-05	0.00	5.29E+10	680.5866	2151877.	0.00
13.4200	-9.22E-04	1410774.	-48933.	-2.96E-05	0.00	5.76E+11	709.9679	2033913.	0.00
13.6400	-9.91E-04	1284045.	-47027.	-2.29E-05	0.00	5.03E+11	734.1702	1955771.	0.00
13.8600	-0.00104	1162438.	-45065.	-1.64E-05	0.00	4.83E+11	752.3787	1904933.	0.00
14.0800	-0.00108	1046079.	-43061.	-1.08E-05	0.00	5.61E+11	765.5391	1875468.	0.00
14.3000	-0.00110	935059.	-41023.	-5.40E-06	0.00	4.26E+11	778.1371	1868358.	0.00
14.5200	-0.00111	829467.	-38959.	-1.91E-07	0.00	4.75E+11	785.5986	1875032.	0.00
14.7400	-0.00110	729353.	-36878.	4.34E-06	0.00	4.33E+11	791.2857	1898190.	0.00
14.9600	-0.00108	634758.	-34785.	7.99E-06	0.00	5.89E+11	794.1242	1935488.	0.00
15.1800	-0.00106	545700.	-32688.	1.06E-05	0.00	5.89E+11	794.9582	1982997.	0.00
15.4000	-0.00103	462183.	-30590.	1.29E-05	0.00	5.89E+11	793.9196	2040746.	0.00
15.6200	-9.90E-04	384202.	-28498.	1.48E-05	0.00	5.89E+11	791.1190	2109028.	0.00
15.8400	-9.49E-04	311736.	-26415.	1.63E-05	0.00	5.89E+11	786.6502	2188382.	0.00
16.0600	-9.04E-04	244753.	-24347.	1.76E-05	0.00	5.89E+11	780.5929	2279593.	0.00
16.2800	-8.56E-04	183212.	-22296.	1.85E-05	0.00	5.89E+11	773.0140	2383711.	0.00
16.5000	-8.06E-04	127059.	-20267.	1.92E-05	0.00	5.89E+11	763.9698	2502084.	0.00
16.7200	-7.55E-04	76231.	-18264.	1.97E-05	0.00	5.89E+11	753.5057	2636410.	0.00
16.9400	-7.02E-04	30655.	-16290.	1.99E-05	0.00	5.89E+11	741.6567	2788809.	0.00
17.1600	-6.49E-04	-9753.	-14350.	2.00E-05	0.00	5.89E+11	728.4461	2961937.	0.00
17.3800	-5.97E-04	-45083.	-12446.	1.99E-05	0.00	5.89E+11	713.8849	3159135.	0.00
17.6000	-5.44E-04	-75438.	-10582.	1.96E-05	0.00	5.89E+11	697.9685	3384650.	0.00
17.8200	-4.93E-04	-100928.	-8762.	1.92E-05	0.00	5.89E+11	680.6736	3643965.	0.00
18.0400	-4.43E-04	-121675.	-6990.	1.87E-05	0.00	5.89E+11	661.9523	3944286.	0.00
18.2600	-3.94E-04	-137809.	-5269.	1.81E-05	0.00	5.89E+11	641.7245	4295302.	0.00
18.4800	-3.47E-04	-149470.	-3604.	1.75E-05	0.00	5.89E+11	619.8648	4710416.	0.00

18.7000	-3.02E-04	-156812.	-1999.	1.68E-05	0.00	5.89E+11	596.1841	5208808.	0.00
18.9200	-2.59E-04	-159999.	-458.9317	1.61E-05	0.00	5.89E+11	570.3989	5819111.	0.00
19.1400	-2.17E-04	-159211.	1010.	1.54E-05	0.00	5.89E+11	542.0795	6586393.	0.00
19.3600	-1.78E-04	-154646.	2399.	1.47E-05	0.00	5.89E+11	510.5572	7586596.	0.00
19.5800	-1.40E-04	-146523.	3700.	1.40E-05	0.00	5.89E+11	474.7393	8960015.	0.00
19.8000	-1.04E-04	-135092.	4897.	1.34E-05	0.00	5.89E+11	432.6921	1.10E+07	0.00
20.0200	-6.94E-05	-120645.	5971.	1.28E-05	0.00	5.89E+11	380.4935	1.45E+07	0.00
20.2400	-3.63E-05	-103547.	6879.	1.23E-05	0.00	5.89E+11	307.7567	2.24E+07	0.00
20.4600	-4.53E-06	-84304.	7479.	1.19E-05	0.00	5.89E+11	146.7052	8.55E+07	0.00
20.6800	2.63E-05	-64039.	7296.	1.15E-05	0.00	5.89E+11	-285.6585	2.87E+07	0.00
20.9000	5.63E-05	-45765.	6432.	1.13E-05	0.00	5.89E+11	-368.6790	1.73E+07	0.00
21.1200	8.58E-05	-30061.	5382.	1.11E-05	0.00	5.89E+11	-426.4626	1.31E+07	0.00
21.3400	1.15E-04	-17330.	4195.	1.10E-05	0.00	5.89E+11	-472.9858	1.09E+07	0.00
21.5600	1.44E-04	-7894.	2894.	1.09E-05	0.00	5.89E+11	-513.0136	9408634.	0.00
21.7800	1.73E-04	-2035.	1492.	1.09E-05	0.00	5.89E+11	-548.7971	8384128.	0.00
22.0000	2.02E-04	0.00	0.00	1.09E-05	0.00	5.89E+11	-581.5772	3807210.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection = 0.50407996 inches
Computed slope at pile head = -0.00477056 radians
Maximum bending moment = 3059750. inch-lbs
Maximum shear force = -53526. lbs
Depth of maximum bending moment = 9.46000000 feet below pile head
Depth of maximum shear force = 12.76000000 feet below pile head
Number of iterations = 37
Number of zero deflection points = 2

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 36000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 334000.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.1004	1.17E-05	36000.	-8.67E-04	0.00	5.86E+11	0.00	0.00	0.00
0.2200	0.09810	95805.	36000.	-8.67E-04	0.00	5.86E+11	0.00	0.00	0.00
0.4400	0.09581	191609.	36000.	-8.66E-04	0.00	5.86E+11	0.00	0.00	0.00
0.6600	0.09352	287413.	36000.	-8.65E-04	0.00	5.86E+11	0.00	0.00	0.00
0.8800	0.09124	383215.	36000.	-8.64E-04	0.00	5.86E+11	0.00	0.00	0.00
1.1000	0.08896	479016.	36000.	-8.62E-04	0.00	5.86E+11	0.00	0.00	0.00
1.3200	0.08669	574815.	36000.	-8.60E-04	0.00	5.86E+11	0.00	0.00	0.00
1.5400	0.08442	670612.	36000.	-8.57E-04	0.00	5.86E+11	0.00	0.00	0.00
1.7600	0.08217	766406.	36000.	-8.54E-04	0.00	5.86E+11	0.00	0.00	0.00
1.9800	0.07992	862197.	36000.	-8.50E-04	0.00	5.86E+11	0.00	0.00	0.00
2.2000	0.07768	957985.	36000.	-8.46E-04	0.00	5.86E+11	-6.88E-04	0.02340	0.00
2.4200	0.07545	1053769.	36000.	-8.41E-04	0.00	5.86E+11	-0.00140	0.04913	0.00
2.6400	0.07324	1149549.	36000.	-8.36E-04	0.00	5.86E+11	-0.00208	0.07487	0.00
2.8600	0.07104	1245324.	36000.	-8.31E-04	0.00	5.86E+11	-0.00271	0.1006	0.00

3.0800	0.06885	1341094.	36000.	-8.25E-04	0.00	5.86E+11	-0.00329	0.1263	0.00
3.3000	0.06668	1436858.	36000.	-8.19E-04	0.00	5.86E+11	-0.00384	0.1521	0.00
3.5200	0.06453	1532618.	36000.	-8.12E-04	0.00	5.86E+11	-0.00435	0.1778	0.00
3.7400	0.06239	1628370.	36000.	-8.05E-04	0.00	5.86E+11	-0.00481	0.2035	0.00
3.9600	0.06028	1724117.	36000.	-7.97E-04	0.00	5.86E+11	-0.00523	0.2293	0.00
4.1800	0.05818	1819856.	36000.	-7.89E-04	0.00	5.86E+11	-0.00562	0.2550	0.00
4.4000	0.05611	1915589.	36000.	-7.81E-04	0.00	5.86E+11	-0.00597	0.2807	0.00
4.6200	0.05406	2011313.	36000.	-7.72E-04	0.00	5.86E+11	-0.00628	0.3065	0.00
4.8400	0.05203	2107030.	36000.	-7.63E-04	0.00	5.86E+11	-0.00655	0.3322	0.00
5.0600	0.05003	2202738.	36000.	-7.53E-04	0.00	5.86E+11	-0.00678	0.3579	0.00
5.2800	0.04806	2298437.	36000.	-7.43E-04	0.00	5.86E+11	-0.00698	0.3837	0.00
5.5000	0.04611	2394127.	35988.	-7.32E-04	0.00	5.86E+11	-8.8791	508.3975	0.00
5.7200	0.04419	2489746.	35909.	-7.21E-04	0.00	5.85E+11	-50.8044	3035.	0.00
5.9400	0.04230	2585001.	35738.	-7.10E-04	0.00	5.85E+11	-78.8875	4924.	0.00
6.1600	0.04044	2679695.	35493.	-6.98E-04	0.00	5.85E+11	-107.0324	6987.	0.00
6.3800	0.03861	2773633.	35173.	-6.86E-04	0.00	5.85E+11	-134.9673	9228.	0.00
6.6000	0.03682	2866620.	34781.	-6.73E-04	0.00	5.85E+11	-162.4277	11647.	0.00
6.8200	0.03506	2958463.	34317.	-6.60E-04	0.00	5.85E+11	-189.1571	14244.	0.00
7.0400	0.03333	3048975.	33783.	-6.46E-04	0.00	5.85E+11	-214.9080	17021.	0.00
7.2600	0.03165	3137978.	33181.	-6.32E-04	0.00	5.85E+11	-241.5021	20147.	0.00
7.4800	0.02999	3225285.	32545.	-6.18E-04	0.00	5.84E+11	-240.4258	21161.	0.00
7.7000	0.02838	3310904.	31915.	-6.03E-04	0.00	5.84E+11	-236.6344	22011.	0.00
7.9200	0.02681	3394860.	31296.	-5.88E-04	0.00	5.84E+11	-232.1471	22861.	0.00
8.1400	0.02528	3477185.	30690.	-5.73E-04	0.00	5.84E+11	-227.0112	23710.	0.00
8.3600	0.02379	3557913.	30098.	-5.57E-04	0.00	5.84E+11	-221.2752	24560.	0.00
8.5800	0.02234	3637085.	29522.	-5.40E-04	0.00	5.84E+11	-214.9884	25409.	0.00
8.8000	0.02093	3714745.	28964.	-5.24E-04	0.00	5.83E+11	-208.2013	26259.	0.00
9.0200	0.01957	3790938.	26573.	-5.07E-04	0.00	5.83E+11	-1603.	216228.	0.00
9.2400	0.01826	3855944.	22366.	-4.90E-04	0.00	5.83E+11	-1584.	229032.	0.00
9.4600	0.01699	3909896.	18212.	-4.72E-04	0.00	5.83E+11	-1563.	242970.	0.00
9.6800	0.01576	3952937.	14114.	-4.54E-04	0.00	5.83E+11	-1542.	258182.	0.00
9.9000	0.01459	3985217.	10074.	-4.36E-04	0.00	5.83E+11	-1519.	274827.	0.00
10.1200	0.01346	4006896.	6096.	-4.18E-04	0.00	5.83E+11	-1494.	293093.	0.00
10.3400	0.01238	4018143.	2185.	-4.00E-04	0.00	5.83E+11	-1469.	313202.	0.00
10.5600	0.01135	4019135.	-1658.	-3.82E-04	0.00	5.83E+11	-1442.	335413.	0.00
10.7800	0.01037	4010062.	-5428.	-3.63E-04	0.00	5.83E+11	-1414.	360040.	0.00
11.0000	0.00943	3991119.	-9121.	-3.45E-04	0.00	5.83E+11	-1384.	387455.	0.00
11.2200	0.00854	3962513.	-12734.	-3.27E-04	0.00	5.83E+11	-1353.	418111.	0.00
11.4400	0.00770	3924462.	-16263.	-3.09E-04	0.00	5.83E+11	-1320.	452565.	0.00
11.6600	0.00691	3877192.	-19704.	-2.92E-04	0.00	5.83E+11	-1286.	491505.	0.00
11.8800	0.00616	3820942.	-23052.	-2.74E-04	0.00	5.83E+11	-1251.	535791.	0.00
12.1000	0.00546	3755961.	-26304.	-2.57E-04	0.00	5.83E+11	-1213.	586524.	0.00
12.3200	0.00480	3682510.	-29455.	-2.40E-04	0.00	5.84E+11	-1174.	645126.	0.00
12.5400	0.00419	3600864.	-32499.	-2.24E-04	0.00	5.84E+11	-1133.	713475.	0.00
12.7600	0.00362	3511309.	-35432.	-2.08E-04	0.00	5.84E+11	-1089.	794111.	0.00
12.9800	0.00309	3414150.	-38247.	-1.92E-04	0.00	5.84E+11	-1043.	890563.	0.00
13.2000	0.00261	3309705.	-40938.	-1.77E-04	0.00	5.84E+11	-994.9501	1007907.	0.00
13.4200	0.00216	3198312.	-43496.	-1.62E-04	0.00	5.85E+11	-943.3000	1153749.	0.00
13.6400	0.00175	3080332.	-45913.	-1.48E-04	0.00	5.85E+11	-887.8125	1340112.	0.00
13.8600	0.00138	2956152.	-48177.	-1.35E-04	0.00	5.85E+11	-827.4850	1587366.	0.00
14.0800	0.00104	2826193.	-50274.	-1.21E-04	0.00	5.85E+11	-760.7002	1933462.	0.00
14.3000	7.35E-04	2690921.	-52181.	-1.09E-04	0.00	5.85E+11	-684.5965	2459605.	0.00
14.5200	4.63E-04	2550867.	-53868.	-9.72E-05	0.00	5.85E+11	-593.3005	3383126.	0.00
14.7400	2.22E-04	2406668.	-55273.	-8.60E-05	0.00	5.86E+11	-470.8439	5611442.	0.00
14.9600	8.70E-06	2259178.	-56195.	-7.55E-05	0.00	5.86E+11	-227.8352	6.91E+07	0.00
15.1800	-1.77E-04	2110090.	-55923.	-6.57E-05	0.00	5.86E+11	434.1245	6466743.	0.00
15.4000	-3.38E-04	1964020.	-54629.	-5.65E-05	0.00	5.86E+11	546.5051	4267944.	0.00
15.6200	-4.76E-04	1821751.	-53090.	-4.80E-05	0.00	5.86E+11	618.8503	3435886.	0.00
15.8400	-5.91E-04	1683788.	-51387.	-4.01E-05	0.00	5.86E+11	671.8159	2999600.	0.00
16.0600	-6.87E-04	1550501.	-49559.	-3.28E-05	0.00	5.86E+11	712.6673	2738554.	0.00
16.2800	-7.64E-04	1422174.	-47635.	-2.61E-05	0.00	5.86E+11	744.9297	2573037.	0.00
16.5000	-8.25E-04	1299034.	-45634.	-1.99E-05	0.00	5.86E+11	770.6167	2466891.	0.00
16.7200	-8.70E-04	1181259.	-43573.	-1.44E-05	0.00	5.86E+11	790.9994	2401336.	0.00
16.9400	-9.00E-04	1068993.	-41464.	-9.28E-06	0.00	5.86E+11	806.9368	2365742.	0.00
17.1600	-9.19E-04	962347.	-39318.	-4.71E-06	0.00	5.86E+11	819.0377	2353772.	0.00
17.3800	-9.25E-04	861404.	-37144.	-5.98E-07	0.00	5.86E+11	827.7482	2361572.	0.00
17.6000	-9.22E-04	766228.	-34951.	3.07E-06	0.00	5.86E+11	833.4028	2386846.	0.00

17.8200	-9.09E-04	676857.	-32747.	6.32E-06	0.00	5.86E+11	836.2551	2428365.	0.00
18.0400	-8.88E-04	593312.	-30539.	9.18E-06	0.00	5.86E+11	836.4978	2485698.	0.00
18.2600	-8.61E-04	515594.	-28334.	1.17E-05	0.00	5.86E+11	834.2741	2559079.	0.00
18.4800	-8.27E-04	443689.	-26137.	1.38E-05	0.00	5.86E+11	829.6860	2649370.	0.00
18.7000	-7.88E-04	377565.	-23956.	1.57E-05	0.00	5.86E+11	822.7978	2758084.	0.00
18.9200	-7.44E-04	317174.	-21796.	1.73E-05	0.00	5.86E+11	813.6372	2887496.	0.00
19.1400	-6.96E-04	262452.	-19663.	1.86E-05	0.00	5.86E+11	802.1942	3040830.	0.00
19.3600	-6.46E-04	213320.	-17563.	1.96E-05	0.00	5.86E+11	788.4158	3222586.	0.00
19.5800	-5.93E-04	169683.	-15503.	2.05E-05	0.00	5.86E+11	772.1984	3439063.	0.00
19.8000	-5.38E-04	131426.	-13490.	2.12E-05	0.00	5.86E+11	753.3736	3699225.	0.00
20.0200	-4.81E-04	98420.	-11529.	2.17E-05	0.00	5.86E+11	731.6861	4016179.	0.00
20.2400	-4.23E-04	70513.	-9631.	2.21E-05	0.00	5.86E+11	706.7580	4409833.	0.00
20.4600	-3.64E-04	47531.	-7803.	2.23E-05	0.00	5.86E+11	678.0279	4912003.	0.00
20.6800	-3.05E-04	29275.	-6057.	2.25E-05	0.00	5.86E+11	644.6410	5577107.	0.00
20.9000	-2.46E-04	15512.	-4407.	2.26E-05	0.00	5.86E+11	605.2351	6507402.	0.00
21.1200	-1.86E-04	5967.	-2872.	2.27E-05	0.00	5.86E+11	557.4684	7923374.	0.00
21.3400	-1.26E-04	306.7584	-1481.	2.27E-05	0.00	5.86E+11	496.7833	1.04E+07	0.00
21.5600	-6.60E-05	-1891.	-280.8051	2.27E-05	0.00	5.86E+11	412.1272	1.65E+07	0.00
21.7800	-6.16E-06	-1216.	365.6662	2.27E-05	0.00	5.86E+11	77.6238	3.33E+07	0.00
22.0000	5.37E-05	0.00	0.00	2.27E-05	0.00	5.86E+11	-354.6437	8721911.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

Pile-head deflection = 0.10038885 inches
Computed slope at pile head = -0.00086734 radians
Maximum bending moment = 4019135. inch-lbs
Maximum shear force = -56195. lbs
Depth of maximum bending moment = 10.56000000 feet below pile head
Depth of maximum shear force = 14.96000000 feet below pile head
Number of iterations = 13
Number of zero deflection points = 2

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	V, lb	31000.	M, in-lb	0.00	-279000.	0.5041	-0.00477	-53526.	3059750.
2	V, lb	36000.	M, in-lb	0.00	334000.	0.1004	-8.67E-04	-56195.	4019135.

Maximum pile-head deflection = 0.5040799570 inches
Maximum pile-head rotation = -0.0047705635 radians = -0.273333 deg.

The analysis ended normally.

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 610.45 ft (NAVD 88)
Latitude: 41.341856
Longitude: -73.275189

Wind

Results:	**76 Vmph**
Wind Speed:	120 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Tue Dec 04 2018

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

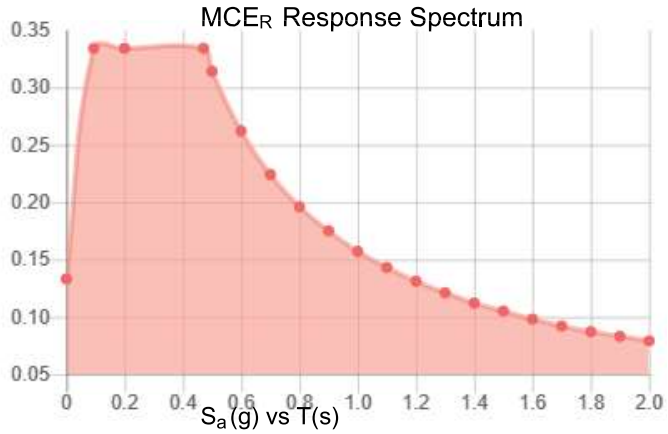
Seismic

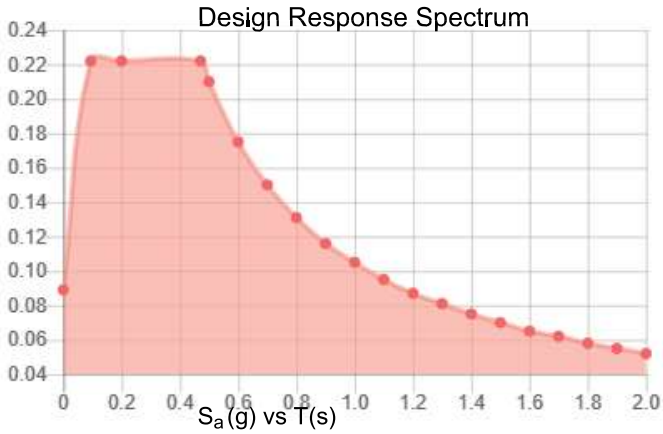
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.209	S_{DS} :	0.222
S_1 :	0.065	S_{D1} :	0.105
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.113
S_{MS} :	0.334	PGA_M :	0.177
S_{M1} :	0.157	F_{PGA} :	1.575
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Dec 04 2018

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Dec 04 2018

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Mount Analysis

Date: **May 28, 2020**

Darcy Tarr
Crown Castle
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Charlotte, NC 28277
(704)-405-6619

POD Group
1033 E Turkeyfoot Lake Rd. Suite 206
Akron, OH 44312
(330) 961-7432
mhoudeshellpodgrp.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T**	
	Carrier Site Number:	**60427**
	Carrier Site Name:	**CTL02144**
	PACE Number:	**MRCTB047199**
	FA Number:	**10035068**
Crown Castle Designation:	**Crown Castle BU Number:**	**841294**
	Crown Castle Site Name:	**MONROE-GUINEA ROAD**
	Crown Castle JDE Job Number:	**605386**
	Crown Castle Order Number:	**517061 Rev. 0**
Engineering Firm Designation:	**POD Report Designation:**	**20-64617**
Site Data:	**230 Guinea Road, Monroe, Fairfield County, CT 06468**	
	Latitude 41° 20' 30.68" Longitude -73° 16' 28.28"	
Structure Information:	**Tower Height & Type:**	**240 ft Self-Support**
	Mount Elevation:	**230 ft**
	Mount Type:	**12.5 ft Frame Mount**

Dear Darcy Tarr,

POD Group is pleased to submit this "Mount Analysis Report" to determine the structural integrity of AT&T's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

12.5 Frame Mount (Typical) Sufficient*
***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis has been performed in accordance with the TIA-222-H Standard based upon an ultimate 3-second gust wind speed of 117 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Dario Pelemis

Respectfully submitted by:

5/28/2020

Jason Cheronis, P.E.
Connecticut PE #: 0032793

TABLE OF CONTENTS

1) INTRODUCTION

This mount is a existing 12.5 ft Frame Mount. This mount is installed at the 230 ft elevation on 3 sectors of the 240 ft Self-Support tower.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.212
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Final Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details	Note
230	232	3	CCI Antennas	HPA-65R-BUU-H6	12.5 ft Frame Mount	
	230	3	CCI Antennas	DMP65R-BU8D		
		3	CCI Antennas	OPA65R-BU6D		
		3	Powerwave Technologies	7770.00		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4478 B14		
		6	Powerwave Technologies	LGP13519		
		2	Raycap	DC6-48-60-18-8F		2
201	207	2	Kathrein	OG-4	-	1

Notes:
1) Not on mount being analyzed, therefore not considered in analysis
2) Tower Mounted and not considered in analysis

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Application	-	Crown Application #: 517061 Rev. 0 Dated: 05/28/2020	Crown
Elevation Drawings	-	Crown Drawing #: A1-230 Dated: 12/03/2019	Crown
Structural Analysis	-	GPD Job #: 2020777.841294.14 Dated: 11/26/2019	Crown
RFDS	-	AT&T FA #: 10035068 Dated: 03/24/2020	Crown

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases. Selected output from the analysis are included in the Appendices.

A tool internally developed, using Microsoft Excel, by POD Group, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the calculations is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 Tower Mount Analysis (Revision B). In addition, this analysis is in accordance with AT&T's mount technical directive.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The weight of the mount was increased 10% in the analysis to account for connections, coax, and jumpers.
5) Member sizes have been assumed from photos of the site and experience with similar mounting systems. If the sizes assumed in this report differ from the actual member sizes, POD Group shall be contacted immediately, and the results of the analysis shall be considered null and void.
6) All structural members shall be verified in accordance with AT&T Mount Technical Directive.
7) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8) Additional mount pipes are considered in Alpha and Gamma sectors to accommodate proposed loading.
9) Mount pipes have been adjusted to meet the edge to edge spacing requirement between the antennas as described in the radio frequency data sheet.
10) Steel grades have been assumed as follows, unless noted otherwise:
    a. Angle — ASTM A36 (GR 36)
    b. Pipe — ASTM A53 (GR 35)
    c. Connection Bolts — ASTM A325

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and POD Group should be allowed to review any new information to determine its effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (12.5 ft Frame Mount)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1	Face	BOTTOMFACE	230	71.0	Pass
	Mount Pipe	MP ALPHA4	230	42.6	Pass
	Pipe	TB PIPE	230	33.5	Pass
	Support Pipe	SUPPIPE	230	14.2	Pass
	Tieback	TIEBACK	230	9.9	Pass

Structure Rating (max from all components) =	71.0%

Notes:
1) All sectors are typical

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity $(lb)^2$	Notes
N53	Existing	330	Pipe	ROHN 2.5 STD	3329	1

Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the loading modification listed below must be completed.

1. Installation of 8' STD P2 pipe on sectors Alpha and Gamma, 5' from the right end of the mount when looking from the front.
2. Recommended P2 Pipe Shall be connected with (2 per sector, 4 total) SitePro1, P/N SCX2-K

- All critical measurements and manufacturer specifications for the above specified modification part shall be field verified prior to material ordering.
- The contractor shall provide shop drawings to POD Group prior to material ordering and/or fabrication of the above specified modification part.
- Any substitutes, additions, or alterations shall be approved by POD Group prior to material ordering and/or fabrication.

If any of these guidelines are not met, POD Group shall not be held liable.

Table 5 – AT&T Specification

Wind Speed (mph)	Ice Thickness (in)	Height (ft)	Exposure	Class	Topo	# of Pipes	Allowable EPA per Pipe (ft sq.)	Allowable Weight per Sector (lbs)
117	1	230	B	II	1	4	13.86	2520

5) DISCLAIMER OF WARRANTIES

POD Group has not performed a site visit to the structure to verify the member sizes or antenna/coax loading unless noted otherwise. If the existing conditions are not as represented in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the structure or foundation. This report does not replace a full structure inspection. The structure, foundations, and mounting systems are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by POD Group in connection with this Structural Analysis are limited to a computer analysis of the structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

POD Group does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing structure. POD Group provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

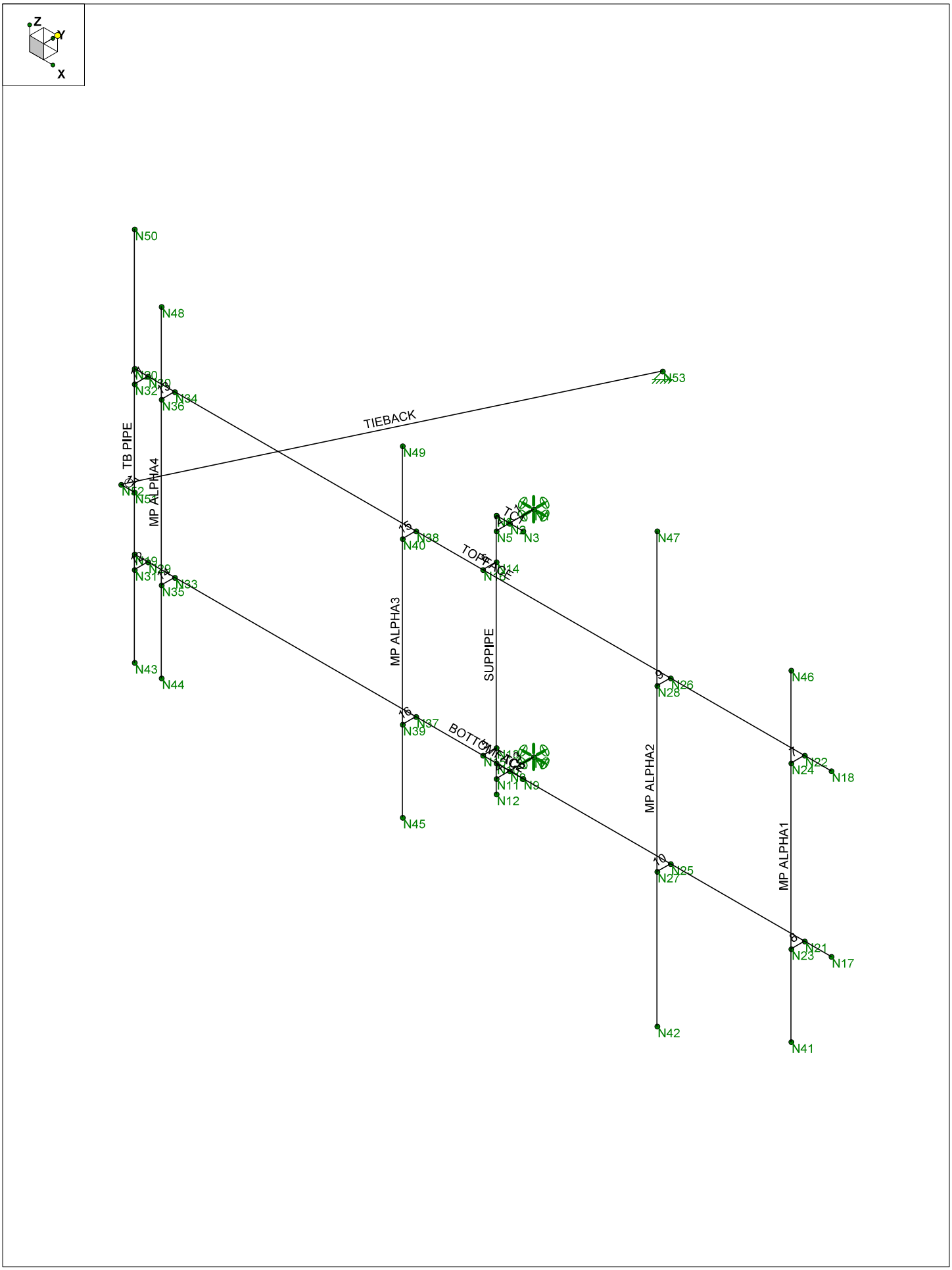
It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

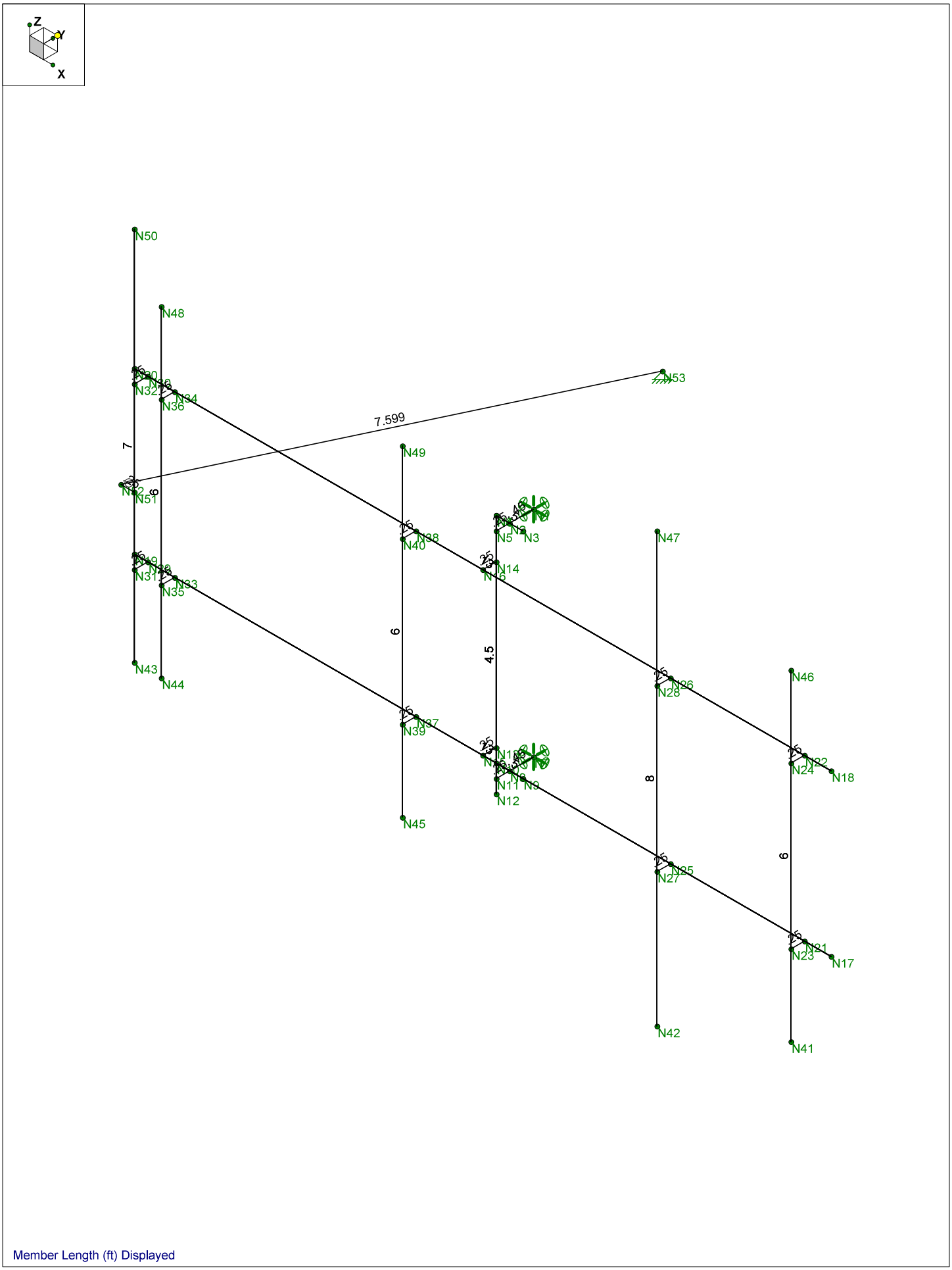
The attached sketches are a schematic representation of the analyzed structure. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from POD Group, but are beyond the scope of this report.

POD Group makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this structure. POD Group will not be responsible whatsoever, for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of POD Group pursuant to this report will be limited to the total fee received for preparation of this report.

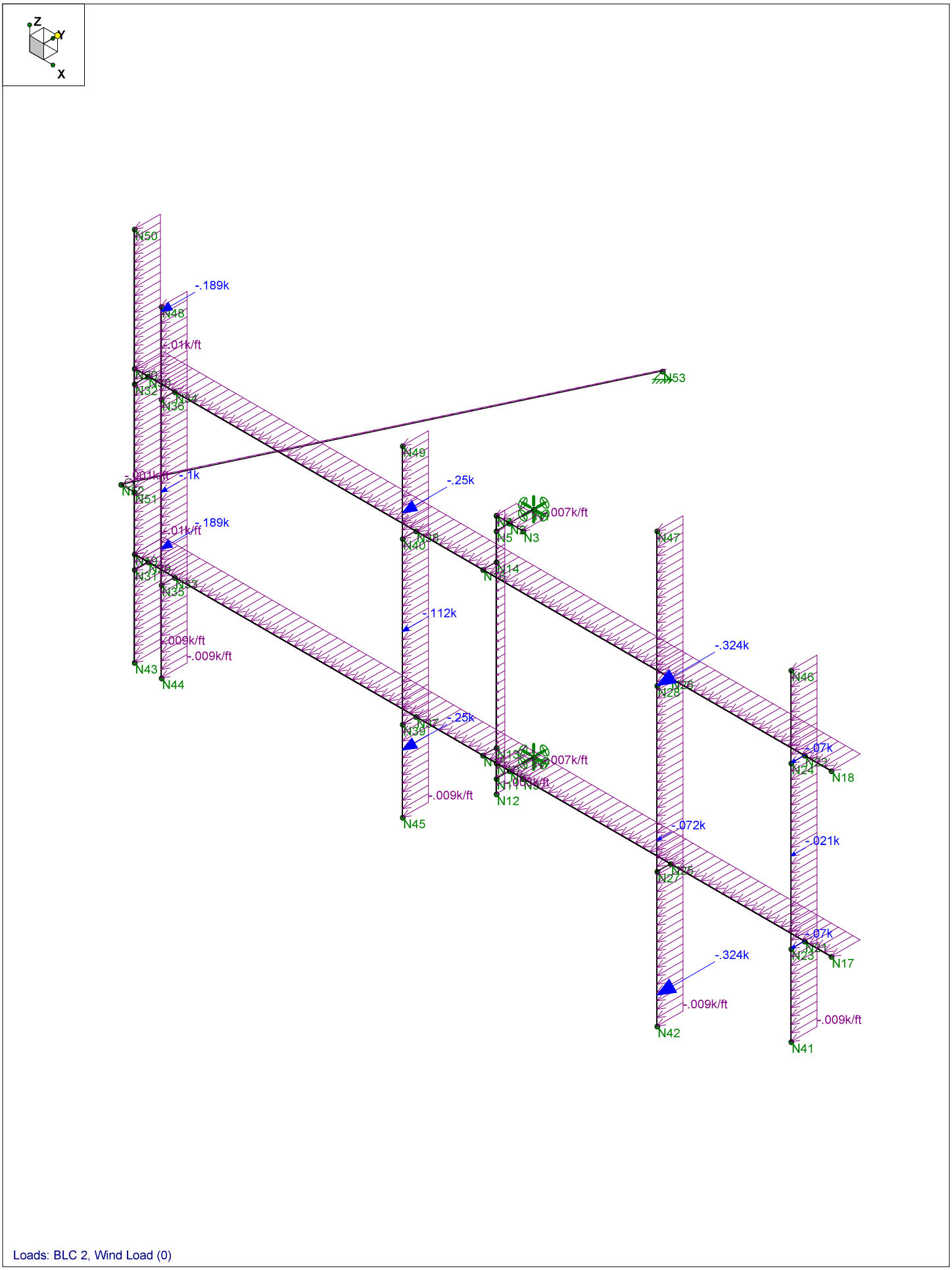
APPENDIX A

Wire Frame and Rendered Models

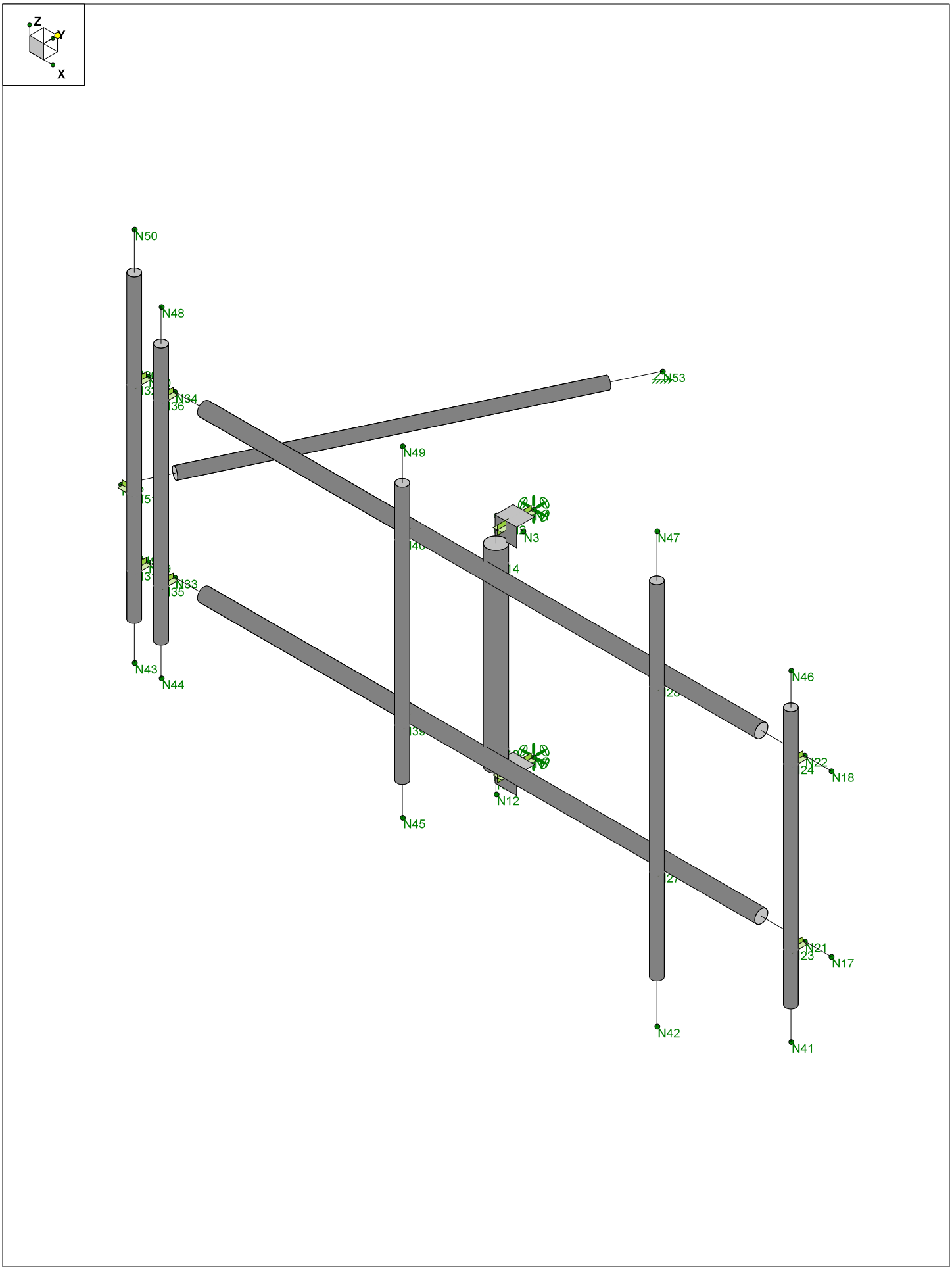

Z
Y
X
N50
N48
N53
TIEBACK
TB PIPE
MP ALPHA4
N49
N52
N51
N30
N32
N34
N36
N31
N33
N35
N43
N44
N40
N38
MP ALPHA3
N39
N37
N45
TOP PIPE
SUPPIPE
BOTTOM PIPE
N5
N3
N14
N11
N9
N12
N47
N28
N26
MP ALPHA2
N27
N25
N46
N24
N22
N18
MP ALPHA1
N23
N21
N17
N42
N41

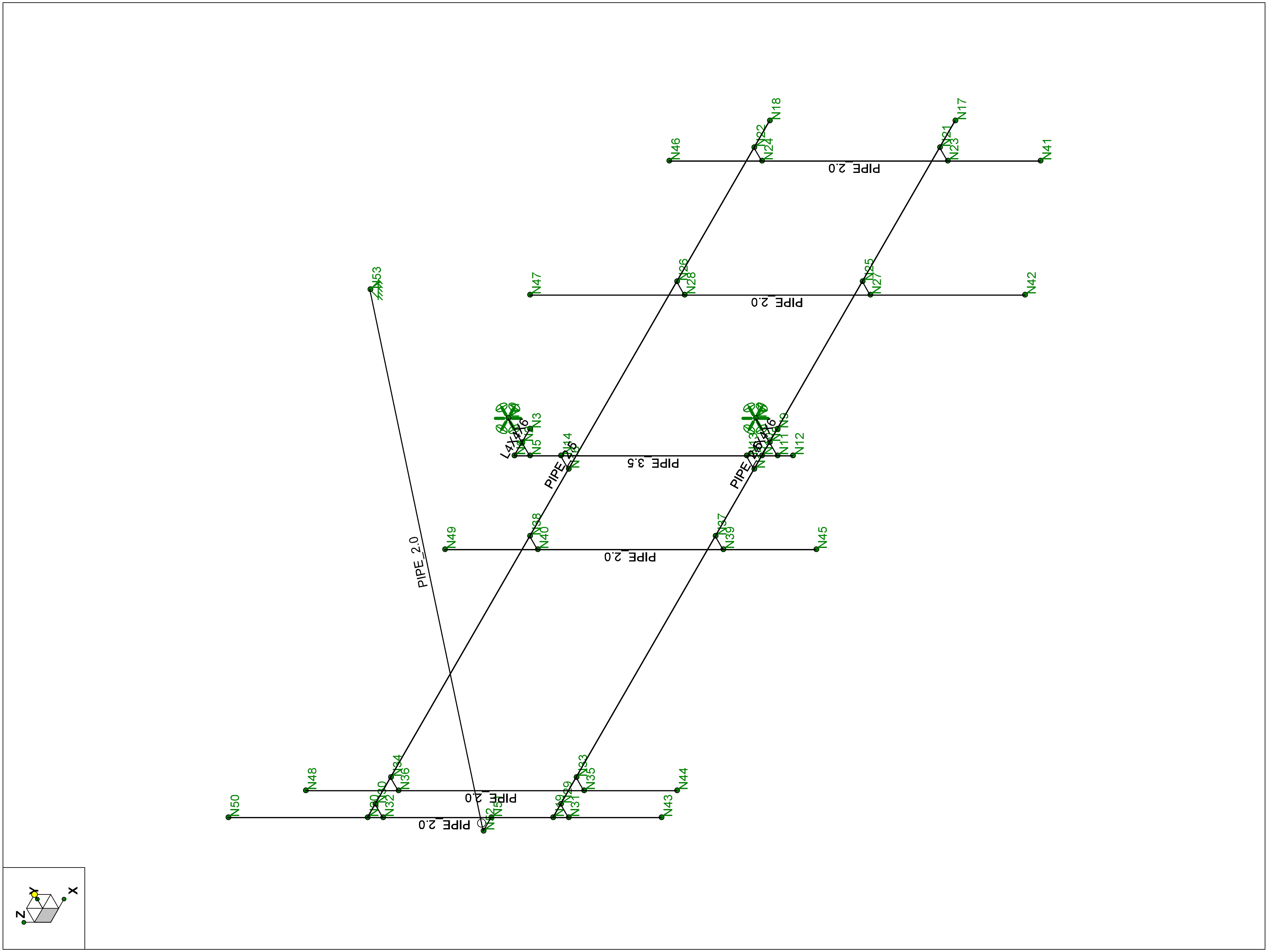


Member Length (ft) Displayed



Loads: BLC 2, Wind Load (0)


Z
Y
X
N50
N48
N53
N34
N36
N49
N3
N47
N33
N35
N43
N44
N46
N22
N18
N12
N45
N21
N17
N42
N41


N17
N18
N21
N23
N24
N41
N46
PIPE_2.0
N25
N26
N27
N28
N42
N47
PIPE_2.0
N3
N5
N12
N14
PIPE_3.5
PIPE_2.0
N37
N38
N39
N40
N45
N49
PIPE_2.0
PIPE_2.0
N53
N33
N34
N35
N36
N44
N48
PIPE_2.0
N31
N32
N43
N50
PIPE_2.0
X
Y
Z

APPENDIX B

Software Input Calculations

POWER OF DESIGN

POD Job #	**20-641617**
Site Number	**841294**
Site Name	**MONROE-GUINEA ROAD**

General Site Information

Mount Type	MF	Risk Category	II	I (seismic)	1	
V (Wind Speed)	117	I(ice)	1	Sms	0.339	
Zs	584			Sm1	0.132	
ti	1	Ss	0.212	Sds	0.226	
Vi	50	S1	0.055	Sd1	0.088	
Kzt	1	Soil Site Class	D (assumed)	Seismic Design Category		
Exposure	B	Fa	1.600		B	
zg	1200	Fv	2.400	Seismic Analysis Not Required		
α	7			R	2	TIA-222-H 16.7
Kmin	0.7	Tower Type	Self Support	As	1	TIA-222-H 16.7
G_H	1	Tower Height	240	Cs, Min	0.03	TIA-222-H 2.7.7.1.1
Ke	0.98			Cs	0.113066667	TIA-222-H 2.7.7.1.1
K_D	0.95					
K_s	0.9					

Appurtenance Information

Model	Shielded	% Shielded	Centerline	Centerline on MP	Spacing (in)	Azimuth	Sector	Quantity		MP #
DMP65R-BU8D	No		230	3	60		A	1	2	
HPA-65R-BUU-H6	No		232	4	46		A	1	4	
OPA65R-BU6D	No		230	3	46		A	1	3	
7770	No		230	3	36		A	1	1	
RRUS 4449 B5/B12	No		230	3			A	1	2	
RRUS 32 B2	No		230	3			A	1	4	
RRUS 4478 B14	No		230	3			A	1	3	
LGP13519	No		230	3			A	2	1	

Mount Information

Elevation (ft)	230
K_z	1.25
Kiz	1.21
tiz	1.21

	Length (ft)	Width (in)	Centerline
Mount Pipes	6	2.375	230

Round Members

Member	Length (ft)	Width (in)	Frame Member	# of Members
Face	12.5	2.875	Yes	2
Support Pipe	12.5	2.875	No	1
Tieback	7.599	2.375	No	1

Flat Members

Member	Length (ft)	Width (in)	Shape	A	B	C	D	Frame Member	# of Members
Tower Connection	0.5	4	Angle	4	0.375			No	2

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Appurtenance Wind Calculations

Model	Height	Width	Depth	Weight (lbs)	Kz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
DMP65R-BU8D	96.0	20.7	7.7	105.6	1.25	40.87	15.86	5.95	0.648	0.243	0.547	0.547	0.243
HPA-65R-BUU-H6	72.0	14.8	9.0	47.9	1.26	40.97	9.22	4.65	0.378	0.191	0.331	0.331	0.191
OPA65R-BU6D	71.2	21.0	7.8	63.5	1.25	40.87	12.22	4.54	0.499	0.186	0.421	0.421	0.186
7770	55.0	11.0	5.0	35.0	1.25	40.87	3.42	1.56	0.140	0.064	0.121	0.121	0.064
RRUS 4449 B5/B12	17.9	13.2	9.4	71.0	1.25	40.87	1.77	1.27	0.072	0.052	0.067	0.067	0.052
RRUS 32 B2	27.2	12.1	7.0	52.9	1.25	40.87	2.46	1.50	0.100	0.061	0.091	0.091	0.061
RRUS 4478 B14	16.5	13.4	7.7	59.9	1.25	40.87	1.66	0.95	0.068	0.039	0.061	0.061	0.039
LGP13519	7.9	4.4	2.7	5.3	1.25	40.87	0.26	0.16	0.011	0.007	0.010	0.010	0.007
DC6-48-60-18-8F	31.3	11.0	11.0	32.8	1.25	40.87	1.09	1.21	0.045	0.050	0.046	0.046	0.050

Appurtenance Ice Calculations

Model	tiz (in)	Height	Width	Depth	Weight (lbs)	Kiz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
DMP65R-BU8D	1.21	98.43	23.13	10.13	251.36	1.21	7.46	16.36	7.21	0.122	0.054	0.105	0.105	0.054
HPA-65R-BUU-H6	1.22	74.43	17.23	11.43	164.13	1.22	7.48	10.03	5.78	0.075	0.043	0.067	0.067	0.043
OPA65R-BU6D	1.21	73.63	23.43	10.23	193.86	1.21	7.46	12.69	5.54	0.095	0.041	0.081	0.081	0.041
7770	1.21	57.43	13.43	7.43	87.62	1.21	7.46	3.93	2.18	0.029	0.016	0.026	0.026	0.016
RRUS 4449 B5/B12	1.21	20.33	15.62	11.87	49.89	1.21	7.46	1.39	1.06	0.010	0.008	0.010	0.010	0.008
RRUS 32 B2	1.21	29.63	14.48	9.43	56.72	1.21	7.46	1.88	1.25	0.014	0.009	0.013	0.013	0.009
RRUS 4478 B14	1.21	18.93	15.83	10.13	43.17	1.21	7.46	1.31	0.84	0.010	0.006	0.009	0.009	0.006
LGP13519	1.21	10.33	6.83	5.13	8.68	1.21	7.46	0.31	0.23	0.002	0.002	0.002	0.002	0.002
DC6-48-60-18-8F	1.21	33.68	13.43	13.43	74.27	1.21	7.46	1.98	1.98	0.015	0.015	0.015	0.015	0.015

Round Members

Member	q_z (lb/ft^2)	Ar	Wind Calculations C	Krf	Cas	EPA (ft^2)	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Krfice	Cas	EPA (ft^2)	Load (k/ft)
Face	40.87	5.99	31.06	0.61	1.82	2.99	0.010	5.30	0.01	7.46	11.05	0.63	1.82	5.70	0.003
Support Pipe	40.87	2.99	31.06	0.61	1.20	1.97	0.003	5.30	0.01	7.46	5.52	0.63	1.20	3.76	0.001
Tieback	40.87	1.50	25.66	0.61	1.20	0.99	0.003	4.80	0.01	7.46	3.04	0.63	1.20	2.07	0.001

Flat Members

Member	q_z (lb/ft^2)	Af	Wind Calculations Cas	EPA	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Krfice	Cas	EPA	Load (k/ft)
Tower Connection	40.87	0.33	1.20	0.18	0.007	6.43	0.01	7.46	0.54	0.63	1.82	0.28	0.002

Appurtenance Seismic Calculations

Model	Weight	Sds	ρ	Cs	As	Ev	Eh
DMP65R-BU8D	105.6	0.226	1.000	0.113	1.000	0.005	0.012
HPA-65R-BUU-H6	47.9	0.226	1.000	0.113	1.000	0.002	0.005
OPA65R-BU6D	63.5	0.226	1.000	0.113	1.000	0.003	0.007
7770	35.0	0.226	1.000	0.113	1.000	0.002	0.004
RRUS 4449 B5/B12	71.0	0.226	1.000	0.113	1.000	0.003	0.008
RRUS 32 B2	52.9	0.226	1.000	0.113	1.000	0.002	0.006
RRUS 4478 B14	59.9	0.226	1.000	0.113	1.000	0.003	0.007
LGP13519	5.3	0.226	1.000	0.113	1.000	0.000	0.001
DC6-48-60-18-8F	32.8	0.226	1.000	0.113	1.000	0.001	0.004

Version 3.12

APPENDIX C

Software Analysis Output

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	TC1	L4X4X6	.5			Lbyy						Lateral
2	TC2	L4X4X6	.5			Lbyy						Lateral
3	BOTTOMF...	PIPE_2.5	13			Lbyy						Lateral
4	TOPFACE	PIPE_2.5	13			Lbyy						Lateral
5	SUPPIPE	PIPE_3.5	4.5			Lbyy						Lateral
6	MP ALPHA1	PIPE_2.0	6			Lbyy						Lateral
7	MP ALPHA2	PIPE_2.0	8			Lbyy						Lateral
8	MP ALPHA3	PIPE_2.0	6			Lbyy						Lateral
9	MP ALPHA4	PIPE_2.0	6			Lbyy						Lateral
10	TB PIPE	PIPE_2.0	7			Lbyy						Lateral
11	TIEBACK	PIPE_2.0	7.599			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	1	N1	N2			RIGID	None	None	RIGID	Typical
2	TC1	N3	N4			L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
3	2	N2	N5			RIGID	None	None	RIGID	Typical
4	3	N7	N8			RIGID	None	None	RIGID	Typical
5	TC2	N9	N10			L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
6	4	N8	N11			RIGID	None	None	RIGID	Typical
7	5	N13	N15			RIGID	None	None	RIGID	Typical
8	6	N14	N16			RIGID	None	None	RIGID	Typical
9	BOTTOMFACE	N19	N17			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
10	TOPFACE	N20	N18			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
11	SUPPIPE	N12	N6			PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical
12	7	N22	N24			RIGID	None	None	RIGID	Typical
13	8	N21	N23			RIGID	None	None	RIGID	Typical
14	9	N26	N28			RIGID	None	None	RIGID	Typical
15	10	N25	N27			RIGID	None	None	RIGID	Typical
16	11	N30	N32			RIGID	None	None	RIGID	Typical
17	12	N29	N31			RIGID	None	None	RIGID	Typical
18	13	N34	N36			RIGID	None	None	RIGID	Typical
19	14	N33	N35			RIGID	None	None	RIGID	Typical
20	15	N38	N40			RIGID	None	None	RIGID	Typical
21	16	N37	N39			RIGID	None	None	RIGID	Typical
22	MP ALPHA1	N41	N46			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
23	MP ALPHA2	N42	N47			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
24	MP ALPHA3	N45	N49			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
25	MP ALPHA4	N44	N48			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
26	TB PIPE	N43	N50			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
27	TIEBACK	N52	N53			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
28	17	N51	N52			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismic...
1	1						Yes	** NA **			None
2	TC1						Yes				None
3	2						Yes	** NA **			None
4	3						Yes	** NA **			None
5	TC2						Yes				None
6	4						Yes	** NA **			None
7	5						Yes	** NA **			None
8	6						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismic...
9	BOTTOMFACE						Yes				None
10	TOPFACE						Yes				None
11	SUPPIPE						Yes				None
12	7						Yes	** NA **			None
13	8						Yes	** NA **			None
14	9						Yes	** NA **			None
15	10						Yes	** NA **			None
16	11						Yes	** NA **			None
17	12						Yes	** NA **			None
18	13						Yes	** NA **			None
19	14						Yes	** NA **			None
20	15						Yes	** NA **			None
21	16						Yes	** NA **			None
22	MP ALPHA1						Yes	Default			None
23	MP ALPHA2						Yes				None
24	MP ALPHA3						Yes				None
25	MP ALPHA4						Yes				None
26	TB PIPE						Yes				None
27	TIEBACK	BenPIN					Yes	Default			None
28	17						Yes	** NA **			None

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 ...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Member Point Loads (BLC 1 : Live Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	TOPFACE	Z	-.5	0

Member Point Loads (BLC 2 : Wind Load (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.324	5.5
2	MP ALPHA2	Y	-.324	.5
3	MP ALPHA4	Y	-.189	5.917
4	MP ALPHA4	Y	-.189	2.083
5	MP ALPHA3	Y	-.25	4.917
6	MP ALPHA3	Y	-.25	1.083
7	MP ALPHA1	Y	-.07	4.5
8	MP ALPHA1	Y	-.07	1.5
9	MP ALPHA2	Y	-.072	3
10	MP ALPHA4	Y	-.1	3
11	MP ALPHA3	Y	-.068	3
12	MP ALPHA1	Y	-.021	3
13	MP ALPHA3	Y	-.045	3

Member Point Loads (BLC 3 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Z	-.053	5.5
2	MP ALPHA2	Z	-.053	.5
3	MP ALPHA4	Z	-.024	5.917
4	MP ALPHA4	Z	-.024	2.083
5	MP ALPHA3	Z	-.032	4.917
6	MP ALPHA3	Z	-.032	1.083
7	MP ALPHA1	Z	-.018	4.5
8	MP ALPHA1	Z	-.018	1.5
9	MP ALPHA2	Z	-.071	3
10	MP ALPHA4	Z	-.053	3
11	MP ALPHA3	Z	-.06	3
12	MP ALPHA1	Z	-.011	3
13	MP ALPHA3	Z	-.033	3

Member Point Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.237	5.5
2	MP ALPHA2	Y	-.237	.5
3	MP ALPHA2	X	-.137	5.5
4	MP ALPHA2	X	-.137	.5
5	MP ALPHA4	Y	-.143	5.917
6	MP ALPHA4	Y	-.143	2.083
7	MP ALPHA4	X	-.083	5.917
8	MP ALPHA4	X	-.083	2.083
9	MP ALPHA3	Y	-.182	4.917
10	MP ALPHA3	Y	-.182	1.083
11	MP ALPHA3	X	-.105	4.917
12	MP ALPHA3	X	-.105	1.083
13	MP ALPHA1	Y	-.052	4.5
14	MP ALPHA1	Y	-.052	1.5
15	MP ALPHA1	X	-.03	4.5
16	MP ALPHA1	X	-.03	1.5
17	MP ALPHA2	Y	-.058	3
18	MP ALPHA2	X	-.034	3
19	MP ALPHA4	Y	-.079	3
20	MP ALPHA4	X	-.045	3
21	MP ALPHA3	Y	-.052	3
22	MP ALPHA3	X	-.03	3
23	MP ALPHA1	Y	-.017	3
24	MP ALPHA1	X	-.01	3
25	MP ALPHA3	Y	-.04	3
26	MP ALPHA3	X	-.023	3

Member Point Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.086	5.5
2	MP ALPHA2	Y	-.086	.5
3	MP ALPHA2	X	-.149	5.5
4	MP ALPHA2	X	-.149	.5
5	MP ALPHA4	Y	-.059	5.917
6	MP ALPHA4	Y	-.059	2.083
7	MP ALPHA4	X	-.103	5.917
8	MP ALPHA4	X	-.103	2.083
9	MP ALPHA3	Y	-.066	4.917
10	MP ALPHA3	Y	-.066	1.083
11	MP ALPHA3	X	-.114	4.917

Member Point Loads (BLC 5 : Wind Load (60)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	MP ALPHA3	X	-.114	1.083
13	MP ALPHA1	Y	-.021	4.5
14	MP ALPHA1	Y	-.021	1.5
15	MP ALPHA1	X	-.036	4.5
16	MP ALPHA1	X	-.036	1.5
17	MP ALPHA2	Y	-.028	3
18	MP ALPHA2	X	-.049	3
19	MP ALPHA4	Y	-.036	3
20	MP ALPHA4	X	-.062	3
21	MP ALPHA3	Y	-.023	3
22	MP ALPHA3	X	-.04	3
23	MP ALPHA1	Y	-.008	3
24	MP ALPHA1	X	-.013	3
25	MP ALPHA3	Y	-.024	3
26	MP ALPHA3	X	-.042	3

Member Point Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	-.122	5.5
2	MP ALPHA2	X	-.122	.5
3	MP ALPHA4	X	-.095	5.917
4	MP ALPHA4	X	-.095	2.083
5	MP ALPHA3	X	-.093	4.917
6	MP ALPHA3	X	-.093	1.083
7	MP ALPHA1	X	-.032	4.5
8	MP ALPHA1	X	-.032	1.5
9	MP ALPHA2	X	-.052	3
10	MP ALPHA4	X	-.061	3
11	MP ALPHA3	X	-.039	3
12	MP ALPHA1	X	-.013	3
13	MP ALPHA3	X	-.05	3

Member Point Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.086	5.5
2	MP ALPHA2	Y	.086	.5
3	MP ALPHA2	X	-.149	5.5
4	MP ALPHA2	X	-.149	.5
5	MP ALPHA4	Y	.059	5.917
6	MP ALPHA4	Y	.059	2.083
7	MP ALPHA4	X	-.103	5.917
8	MP ALPHA4	X	-.103	2.083
9	MP ALPHA3	Y	.066	4.917
10	MP ALPHA3	Y	.066	1.083
11	MP ALPHA3	X	-.114	4.917
12	MP ALPHA3	X	-.114	1.083
13	MP ALPHA1	Y	.021	4.5
14	MP ALPHA1	Y	.021	1.5
15	MP ALPHA1	X	-.036	4.5
16	MP ALPHA1	X	-.036	1.5
17	MP ALPHA2	Y	.028	3
18	MP ALPHA2	X	-.049	3
19	MP ALPHA4	Y	.036	3
20	MP ALPHA4	X	-.062	3
21	MP ALPHA3	Y	.023	3
22	MP ALPHA3	X	-.04	3

Member Point Loads (BLC 7 : Wind Load (120)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
23	MP ALPHA1	Y	.008	3
24	MP ALPHA1	X	-.013	3
25	MP ALPHA3	Y	.024	3
26	MP ALPHA3	X	-.042	3

Member Point Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.237	5.5
2	MP ALPHA2	Y	.237	.5
3	MP ALPHA2	X	-.137	5.5
4	MP ALPHA2	X	-.137	.5
5	MP ALPHA4	Y	.143	5.917
6	MP ALPHA4	Y	.143	2.083
7	MP ALPHA4	X	-.083	5.917
8	MP ALPHA4	X	-.083	2.083
9	MP ALPHA3	Y	.182	4.917
10	MP ALPHA3	Y	.182	1.083
11	MP ALPHA3	X	-.105	4.917
12	MP ALPHA3	X	-.105	1.083
13	MP ALPHA1	Y	.052	4.5
14	MP ALPHA1	Y	.052	1.5
15	MP ALPHA1	X	-.03	4.5
16	MP ALPHA1	X	-.03	1.5
17	MP ALPHA2	Y	.058	3
18	MP ALPHA2	X	-.034	3
19	MP ALPHA4	Y	.079	3
20	MP ALPHA4	X	-.045	3
21	MP ALPHA3	Y	.052	3
22	MP ALPHA3	X	-.03	3
23	MP ALPHA1	Y	.017	3
24	MP ALPHA1	X	-.01	3
25	MP ALPHA3	Y	.04	3
26	MP ALPHA3	X	-.023	3

Member Point Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.324	5.5
2	MP ALPHA2	Y	.324	.5
3	MP ALPHA4	Y	.189	5.917
4	MP ALPHA4	Y	.189	2.083
5	MP ALPHA3	Y	.25	4.917
6	MP ALPHA3	Y	.25	1.083
7	MP ALPHA1	Y	.07	4.5
8	MP ALPHA1	Y	.07	1.5
9	MP ALPHA2	Y	.072	3
10	MP ALPHA4	Y	.1	3
11	MP ALPHA3	Y	.068	3
12	MP ALPHA1	Y	.021	3
13	MP ALPHA3	Y	.045	3

Member Point Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.237	5.5
2	MP ALPHA2	Y	.237	.5
3	MP ALPHA2	X	.137	5.5

Member Point Loads (BLC 10 : Wind Load (210)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	MP ALPHA2	X	.137	.5
5	MP ALPHA4	Y	.143	5.917
6	MP ALPHA4	Y	.143	2.083
7	MP ALPHA4	X	.083	5.917
8	MP ALPHA4	X	.083	2.083
9	MP ALPHA3	Y	.182	4.917
10	MP ALPHA3	Y	.182	1.083
11	MP ALPHA3	X	.105	4.917
12	MP ALPHA3	X	.105	1.083
13	MP ALPHA1	Y	.052	4.5
14	MP ALPHA1	Y	.052	1.5
15	MP ALPHA1	X	.03	4.5
16	MP ALPHA1	X	.03	1.5
17	MP ALPHA2	Y	.058	3
18	MP ALPHA2	X	.034	3
19	MP ALPHA4	Y	.079	3
20	MP ALPHA4	X	.045	3
21	MP ALPHA3	Y	.052	3
22	MP ALPHA3	X	.03	3
23	MP ALPHA1	Y	.017	3
24	MP ALPHA1	X	.01	3
25	MP ALPHA3	Y	.04	3
26	MP ALPHA3	X	.023	3

Member Point Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.086	5.5
2	MP ALPHA2	Y	.086	.5
3	MP ALPHA2	X	.149	5.5
4	MP ALPHA2	X	.149	.5
5	MP ALPHA4	Y	.059	5.917
6	MP ALPHA4	Y	.059	2.083
7	MP ALPHA4	X	.103	5.917
8	MP ALPHA4	X	.103	2.083
9	MP ALPHA3	Y	.066	4.917
10	MP ALPHA3	Y	.066	1.083
11	MP ALPHA3	X	.114	4.917
12	MP ALPHA3	X	.114	1.083
13	MP ALPHA1	Y	.021	4.5
14	MP ALPHA1	Y	.021	1.5
15	MP ALPHA1	X	.036	4.5
16	MP ALPHA1	X	.036	1.5
17	MP ALPHA2	Y	.028	3
18	MP ALPHA2	X	.049	3
19	MP ALPHA4	Y	.036	3
20	MP ALPHA4	X	.062	3
21	MP ALPHA3	Y	.023	3
22	MP ALPHA3	X	.04	3
23	MP ALPHA1	Y	.008	3
24	MP ALPHA1	X	.013	3
25	MP ALPHA3	Y	.024	3
26	MP ALPHA3	X	.042	3

Member Point Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	.122	5.5

Member Point Loads (BLC 12 : Wind Load (270)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP ALPHA2	X	.122	.5
3	MP ALPHA4	X	.095	5.917
4	MP ALPHA4	X	.095	2.083
5	MP ALPHA3	X	.093	4.917
6	MP ALPHA3	X	.093	1.083
7	MP ALPHA1	X	.032	4.5
8	MP ALPHA1	X	.032	1.5
9	MP ALPHA2	X	.052	3
10	MP ALPHA4	X	.061	3
11	MP ALPHA3	X	.039	3
12	MP ALPHA1	X	.013	3
13	MP ALPHA3	X	.05	3

Member Point Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.086	5.5
2	MP ALPHA2	Y	-.086	.5
3	MP ALPHA2	X	.149	5.5
4	MP ALPHA2	X	.149	.5
5	MP ALPHA4	Y	-.059	5.917
6	MP ALPHA4	Y	-.059	2.083
7	MP ALPHA4	X	.103	5.917
8	MP ALPHA4	X	.103	2.083
9	MP ALPHA3	Y	-.066	4.917
10	MP ALPHA3	Y	-.066	1.083
11	MP ALPHA3	X	.114	4.917
12	MP ALPHA3	X	.114	1.083
13	MP ALPHA1	Y	-.021	4.5
14	MP ALPHA1	Y	-.021	1.5
15	MP ALPHA1	X	.036	4.5
16	MP ALPHA1	X	.036	1.5
17	MP ALPHA2	Y	-.028	3
18	MP ALPHA2	X	.049	3
19	MP ALPHA4	Y	-.036	3
20	MP ALPHA4	X	.062	3
21	MP ALPHA3	Y	-.023	3
22	MP ALPHA3	X	.04	3
23	MP ALPHA1	Y	-.008	3
24	MP ALPHA1	X	.013	3
25	MP ALPHA3	Y	-.024	3
26	MP ALPHA3	X	.042	3

Member Point Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.237	5.5
2	MP ALPHA2	Y	-.237	.5
3	MP ALPHA2	X	.137	5.5
4	MP ALPHA2	X	.137	.5
5	MP ALPHA4	Y	-.143	5.917
6	MP ALPHA4	Y	-.143	2.083
7	MP ALPHA4	X	.083	5.917
8	MP ALPHA4	X	.083	2.083
9	MP ALPHA3	Y	-.182	4.917
10	MP ALPHA3	Y	-.182	1.083
11	MP ALPHA3	X	.105	4.917
12	MP ALPHA3	X	.105	1.083

Member Point Loads (BLC 14 : Wind Load (330)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
13	MP ALPHA1	Y	-.052	4.5
14	MP ALPHA1	Y	-.052	1.5
15	MP ALPHA1	X	.03	4.5
16	MP ALPHA1	X	.03	1.5
17	MP ALPHA2	Y	-.058	3
18	MP ALPHA2	X	.034	3
19	MP ALPHA4	Y	-.079	3
20	MP ALPHA4	X	.045	3
21	MP ALPHA3	Y	-.052	3
22	MP ALPHA3	X	.03	3
23	MP ALPHA1	Y	-.017	3
24	MP ALPHA1	X	.01	3
25	MP ALPHA3	Y	-.04	3
26	MP ALPHA3	X	.023	3

Member Point Loads (BLC 15 : Maintanence (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.021	5.5
2	MP ALPHA2	Y	-.021	.5
3	MP ALPHA4	Y	-.012	5.917
4	MP ALPHA4	Y	-.012	2.083
5	MP ALPHA3	Y	-.016	4.917
6	MP ALPHA3	Y	-.016	1.083
7	MP ALPHA1	Y	-.005	4.5
8	MP ALPHA1	Y	-.005	1.5
9	MP ALPHA2	Y	-.005	3
10	MP ALPHA4	Y	-.007	3
11	MP ALPHA3	Y	-.004	3
12	MP ALPHA1	Y	-.001	3
13	MP ALPHA3	Y	-.003	3

Member Point Loads (BLC 16 : Maintanence (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.016	5.5
2	MP ALPHA2	Y	-.016	.5
3	MP ALPHA2	X	-.009	5.5
4	MP ALPHA2	X	-.009	.5
5	MP ALPHA4	Y	-.009	5.917
6	MP ALPHA4	Y	-.009	2.083
7	MP ALPHA4	X	-.005	5.917
8	MP ALPHA4	X	-.005	2.083
9	MP ALPHA3	Y	-.012	4.917
10	MP ALPHA3	Y	-.012	1.083
11	MP ALPHA3	X	-.007	4.917
12	MP ALPHA3	X	-.007	1.083
13	MP ALPHA1	Y	-.003	4.5
14	MP ALPHA1	Y	-.003	1.5
15	MP ALPHA1	X	-.002	4.5
16	MP ALPHA1	X	-.002	1.5
17	MP ALPHA2	Y	-.004	3
18	MP ALPHA2	X	-.002	3
19	MP ALPHA4	Y	-.005	3
20	MP ALPHA4	X	-.003	3
21	MP ALPHA3	Y	-.003	3
22	MP ALPHA3	X	-.002	3
23	MP ALPHA1	Y	-.001	3

Member Point Loads (BLC 16 : Maintanence (30)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
24	MP ALPHA1	X	-.000634	3
25	MP ALPHA3	Y	-.003	3
26	MP ALPHA3	X	-.002	3

Member Point Loads (BLC 17 : Maintanence (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.006	5.5
2	MP ALPHA2	Y	-.006	.5
3	MP ALPHA2	X	-.01	5.5
4	MP ALPHA2	X	-.01	.5
5	MP ALPHA4	Y	-.004	5.917
6	MP ALPHA4	Y	-.004	2.083
7	MP ALPHA4	X	-.007	5.917
8	MP ALPHA4	X	-.007	2.083
9	MP ALPHA3	Y	-.004	4.917
10	MP ALPHA3	Y	-.004	1.083
11	MP ALPHA3	X	-.008	4.917
12	MP ALPHA3	X	-.008	1.083
13	MP ALPHA1	Y	-.001	4.5
14	MP ALPHA1	Y	-.001	1.5
15	MP ALPHA1	X	-.002	4.5
16	MP ALPHA1	X	-.002	1.5
17	MP ALPHA2	Y	-.002	3
18	MP ALPHA2	X	-.003	3
19	MP ALPHA4	Y	-.002	3
20	MP ALPHA4	X	-.004	3
21	MP ALPHA3	Y	-.002	3
22	MP ALPHA3	X	-.003	3
23	MP ALPHA1	Y	-.000503	3
24	MP ALPHA1	X	-.00087	3
25	MP ALPHA3	Y	-.002	3
26	MP ALPHA3	X	-.003	3

Member Point Loads (BLC 18 : Maintanence (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	-.008	5.5
2	MP ALPHA2	X	-.008	.5
3	MP ALPHA4	X	-.006	5.917
4	MP ALPHA4	X	-.006	2.083
5	MP ALPHA3	X	-.006	4.917
6	MP ALPHA3	X	-.006	1.083
7	MP ALPHA1	X	-.002	4.5
8	MP ALPHA1	X	-.002	1.5
9	MP ALPHA2	X	-.003	3
10	MP ALPHA4	X	-.004	3
11	MP ALPHA3	X	-.003	3
12	MP ALPHA1	X	-.000873	3
13	MP ALPHA3	X	-.003	3

Member Point Loads (BLC 19 : Maintanence (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.006	5.5
2	MP ALPHA2	Y	.006	.5
3	MP ALPHA2	X	-.01	5.5
4	MP ALPHA2	X	-.01	.5

Member Point Loads (BLC 19 : Maintanence (120)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	MP ALPHA4	Y	.004	5.917
6	MP ALPHA4	Y	.004	2.083
7	MP ALPHA4	X	-.007	5.917
8	MP ALPHA4	X	-.007	2.083
9	MP ALPHA3	Y	.004	4.917
10	MP ALPHA3	Y	.004	1.083
11	MP ALPHA3	X	-.008	4.917
12	MP ALPHA3	X	-.008	1.083
13	MP ALPHA1	Y	.001	4.5
14	MP ALPHA1	Y	.001	1.5
15	MP ALPHA1	X	-.002	4.5
16	MP ALPHA1	X	-.002	1.5
17	MP ALPHA2	Y	.002	3
18	MP ALPHA2	X	-.003	3
19	MP ALPHA4	Y	.002	3
20	MP ALPHA4	X	-.004	3
21	MP ALPHA3	Y	.002	3
22	MP ALPHA3	X	-.003	3
23	MP ALPHA1	Y	.000503	3
24	MP ALPHA1	X	-.00087	3
25	MP ALPHA3	Y	.002	3
26	MP ALPHA3	X	-.003	3

Member Point Loads (BLC 20 : Maintanence (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.016	5.5
2	MP ALPHA2	Y	.016	.5
3	MP ALPHA2	X	-.009	5.5
4	MP ALPHA2	X	-.009	.5
5	MP ALPHA4	Y	.009	5.917
6	MP ALPHA4	Y	.009	2.083
7	MP ALPHA4	X	-.005	5.917
8	MP ALPHA4	X	-.005	2.083
9	MP ALPHA3	Y	.012	4.917
10	MP ALPHA3	Y	.012	1.083
11	MP ALPHA3	X	-.007	4.917
12	MP ALPHA3	X	-.007	1.083
13	MP ALPHA1	Y	.003	4.5
14	MP ALPHA1	Y	.003	1.5
15	MP ALPHA1	X	-.002	4.5
16	MP ALPHA1	X	-.002	1.5
17	MP ALPHA2	Y	.004	3
18	MP ALPHA2	X	-.002	3
19	MP ALPHA4	Y	.005	3
20	MP ALPHA4	X	-.003	3
21	MP ALPHA3	Y	.003	3
22	MP ALPHA3	X	-.002	3
23	MP ALPHA1	Y	.001	3
24	MP ALPHA1	X	-.000634	3
25	MP ALPHA3	Y	.003	3
26	MP ALPHA3	X	-.002	3

Member Point Loads (BLC 21 : Maintanence (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.021	5.5
2	MP ALPHA2	Y	.021	.5

Member Point Loads (BLC 21 : Maintanence (180)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	MP ALPHA4	Y	.012	5.917
4	MP ALPHA4	Y	.012	2.083
5	MP ALPHA3	Y	.016	4.917
6	MP ALPHA3	Y	.016	1.083
7	MP ALPHA1	Y	.005	4.5
8	MP ALPHA1	Y	.005	1.5
9	MP ALPHA2	Y	.005	3
10	MP ALPHA4	Y	.007	3
11	MP ALPHA3	Y	.004	3
12	MP ALPHA1	Y	.001	3
13	MP ALPHA3	Y	.003	3

Member Point Loads (BLC 22 : Maintanence (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.016	5.5
2	MP ALPHA2	Y	.016	.5
3	MP ALPHA2	X	.009	5.5
4	MP ALPHA2	X	.009	.5
5	MP ALPHA4	Y	.009	5.917
6	MP ALPHA4	Y	.009	2.083
7	MP ALPHA4	X	.005	5.917
8	MP ALPHA4	X	.005	2.083
9	MP ALPHA3	Y	.012	4.917
10	MP ALPHA3	Y	.012	1.083
11	MP ALPHA3	X	.007	4.917
12	MP ALPHA3	X	.007	1.083
13	MP ALPHA1	Y	.003	4.5
14	MP ALPHA1	Y	.003	1.5
15	MP ALPHA1	X	.002	4.5
16	MP ALPHA1	X	.002	1.5
17	MP ALPHA2	Y	.004	3
18	MP ALPHA2	X	.002	3
19	MP ALPHA4	Y	.005	3
20	MP ALPHA4	X	.003	3
21	MP ALPHA3	Y	.003	3
22	MP ALPHA3	X	.002	3
23	MP ALPHA1	Y	.001	3
24	MP ALPHA1	X	.000634	3
25	MP ALPHA3	Y	.003	3
26	MP ALPHA3	X	.002	3

Member Point Loads (BLC 23 : Maintanence (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.006	5.5
2	MP ALPHA2	Y	.006	.5
3	MP ALPHA2	X	.01	5.5
4	MP ALPHA2	X	.01	.5
5	MP ALPHA4	Y	.004	5.917
6	MP ALPHA4	Y	.004	2.083
7	MP ALPHA4	X	.007	5.917
8	MP ALPHA4	X	.007	2.083
9	MP ALPHA3	Y	.004	4.917
10	MP ALPHA3	Y	.004	1.083
11	MP ALPHA3	X	.008	4.917
12	MP ALPHA3	X	.008	1.083
13	MP ALPHA1	Y	.001	4.5

Member Point Loads (BLC 23 : Maintanence (240)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	MP ALPHA1	Y	.001	1.5
15	MP ALPHA1	X	.002	4.5
16	MP ALPHA1	X	.002	1.5
17	MP ALPHA2	Y	.002	3
18	MP ALPHA2	X	.003	3
19	MP ALPHA4	Y	.002	3
20	MP ALPHA4	X	.004	3
21	MP ALPHA3	Y	.002	3
22	MP ALPHA3	X	.003	3
23	MP ALPHA1	Y	.000503	3
24	MP ALPHA1	X	.00087	3
25	MP ALPHA3	Y	.002	3
26	MP ALPHA3	X	.003	3

Member Point Loads (BLC 24 : Maintanence (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	.008	5.5
2	MP ALPHA2	X	.008	.5
3	MP ALPHA4	X	.006	5.917
4	MP ALPHA4	X	.006	2.083
5	MP ALPHA3	X	.006	4.917
6	MP ALPHA3	X	.006	1.083
7	MP ALPHA1	X	.002	4.5
8	MP ALPHA1	X	.002	1.5
9	MP ALPHA2	X	.003	3
10	MP ALPHA4	X	.004	3
11	MP ALPHA3	X	.003	3
12	MP ALPHA1	X	.000873	3
13	MP ALPHA3	X	.003	3

Member Point Loads (BLC 25 : Maintanence (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.006	5.5
2	MP ALPHA2	Y	-.006	.5
3	MP ALPHA2	X	.01	5.5
4	MP ALPHA2	X	.01	.5
5	MP ALPHA4	Y	-.004	5.917
6	MP ALPHA4	Y	-.004	2.083
7	MP ALPHA4	X	.007	5.917
8	MP ALPHA4	X	.007	2.083
9	MP ALPHA3	Y	-.004	4.917
10	MP ALPHA3	Y	-.004	1.083
11	MP ALPHA3	X	.008	4.917
12	MP ALPHA3	X	.008	1.083
13	MP ALPHA1	Y	-.001	4.5
14	MP ALPHA1	Y	-.001	1.5
15	MP ALPHA1	X	.002	4.5
16	MP ALPHA1	X	.002	1.5
17	MP ALPHA2	Y	-.002	3
18	MP ALPHA2	X	.003	3
19	MP ALPHA4	Y	-.002	3
20	MP ALPHA4	X	.004	3
21	MP ALPHA3	Y	-.002	3
22	MP ALPHA3	X	.003	3
23	MP ALPHA1	Y	-.000503	3
24	MP ALPHA1	X	.00087	3

Member Point Loads (BLC 25 : Maintanence (300)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
25	MP ALPHA3	Y	-.002	3
26	MP ALPHA3	X	.003	3

Member Point Loads (BLC 26 : Maintanence (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.016	5.5
2	MP ALPHA2	Y	-.016	.5
3	MP ALPHA2	X	.009	5.5
4	MP ALPHA2	X	.009	.5
5	MP ALPHA4	Y	-.009	5.917
6	MP ALPHA4	Y	-.009	2.083
7	MP ALPHA4	X	.005	5.917
8	MP ALPHA4	X	.005	2.083
9	MP ALPHA3	Y	-.012	4.917
10	MP ALPHA3	Y	-.012	1.083
11	MP ALPHA3	X	.007	4.917
12	MP ALPHA3	X	.007	1.083
13	MP ALPHA1	Y	-.003	4.5
14	MP ALPHA1	Y	-.003	1.5
15	MP ALPHA1	X	.002	4.5
16	MP ALPHA1	X	.002	1.5
17	MP ALPHA2	Y	-.004	3
18	MP ALPHA2	X	.002	3
19	MP ALPHA4	Y	-.005	3
20	MP ALPHA4	X	.003	3
21	MP ALPHA3	Y	-.003	3
22	MP ALPHA3	X	.002	3
23	MP ALPHA1	Y	-.001	3
24	MP ALPHA1	X	.000634	3
25	MP ALPHA3	Y	-.003	3
26	MP ALPHA3	X	.002	3

Member Point Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Z	-.126	5.5
2	MP ALPHA2	Z	-.126	.5
3	MP ALPHA4	Z	-.082	5.917
4	MP ALPHA4	Z	-.082	2.083
5	MP ALPHA3	Z	-.097	4.917
6	MP ALPHA3	Z	-.097	1.083
7	MP ALPHA1	Z	-.044	4.5
8	MP ALPHA1	Z	-.044	1.5
9	MP ALPHA2	Z	-.05	3
10	MP ALPHA4	Z	-.057	3
11	MP ALPHA3	Z	-.043	3
12	MP ALPHA1	Z	-.017	3
13	MP ALPHA3	Z	-.074	3

Member Point Loads (BLC 28 : Ice Wind Load (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.061	5.5
2	MP ALPHA2	Y	-.061	.5
3	MP ALPHA4	Y	-.038	5.917
4	MP ALPHA4	Y	-.038	2.083
5	MP ALPHA3	Y	-.047	4.917

Member Point Loads (BLC 28 : Ice Wind Load (0)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	MP ALPHA3	Y	-.047	1.083
7	MP ALPHA1	Y	-.015	4.5
8	MP ALPHA1	Y	-.015	1.5
9	MP ALPHA2	Y	-.01	3
10	MP ALPHA4	Y	-.014	3
11	MP ALPHA3	Y	-.01	3
12	MP ALPHA1	Y	-.005	3
13	MP ALPHA3	Y	-.015	3

Member Point Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.045	5.5
2	MP ALPHA2	Y	-.045	.5
3	MP ALPHA2	X	-.026	5.5
4	MP ALPHA2	X	-.026	.5
5	MP ALPHA4	Y	-.029	5.917
6	MP ALPHA4	Y	-.029	2.083
7	MP ALPHA4	X	-.017	5.917
8	MP ALPHA4	X	-.017	2.083
9	MP ALPHA3	Y	-.035	4.917
10	MP ALPHA3	Y	-.035	1.083
11	MP ALPHA3	X	-.02	4.917
12	MP ALPHA3	X	-.02	1.083
13	MP ALPHA1	Y	-.011	4.5
14	MP ALPHA1	Y	-.011	1.5
15	MP ALPHA1	X	-.007	4.5
16	MP ALPHA1	X	-.007	1.5
17	MP ALPHA2	Y	-.008	3
18	MP ALPHA2	X	-.005	3
19	MP ALPHA4	Y	-.011	3
20	MP ALPHA4	X	-.006	3
21	MP ALPHA3	Y	-.008	3
22	MP ALPHA3	X	-.004	3
23	MP ALPHA1	Y	-.004	3
24	MP ALPHA1	X	-.002	3
25	MP ALPHA3	Y	-.013	3
26	MP ALPHA3	X	-.007	3

Member Point Loads (BLC 30 : Ice Wind Load (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.018	5.5
2	MP ALPHA2	Y	-.018	.5
3	MP ALPHA2	X	-.031	5.5
4	MP ALPHA2	X	-.031	.5
5	MP ALPHA4	Y	-.013	5.917
6	MP ALPHA4	Y	-.013	2.083
7	MP ALPHA4	X	-.022	5.917
8	MP ALPHA4	X	-.022	2.083
9	MP ALPHA3	Y	-.014	4.917
10	MP ALPHA3	Y	-.014	1.083
11	MP ALPHA3	X	-.024	4.917
12	MP ALPHA3	X	-.024	1.083
13	MP ALPHA1	Y	-.005	4.5
14	MP ALPHA1	Y	-.005	1.5
15	MP ALPHA1	X	-.008	4.5
16	MP ALPHA1	X	-.008	1.5

Member Point Loads (BLC 30 : Ice Wind Load (60)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
17	MP ALPHA2	Y	-.004	3
18	MP ALPHA2	X	-.007	3
19	MP ALPHA4	Y	-.005	3
20	MP ALPHA4	X	-.009	3
21	MP ALPHA3	Y	-.004	3
22	MP ALPHA3	X	-.006	3
23	MP ALPHA1	Y	-.002	3
24	MP ALPHA1	X	-.003	3
25	MP ALPHA3	Y	-.007	3
26	MP ALPHA3	X	-.013	3

Member Point Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	-.027	5.5
2	MP ALPHA2	X	-.027	.5
3	MP ALPHA4	X	-.022	5.917
4	MP ALPHA4	X	-.022	2.083
5	MP ALPHA3	X	-.021	4.917
6	MP ALPHA3	X	-.021	1.083
7	MP ALPHA1	X	-.008	4.5
8	MP ALPHA1	X	-.008	1.5
9	MP ALPHA2	X	-.008	3
10	MP ALPHA4	X	-.009	3
11	MP ALPHA3	X	-.006	3
12	MP ALPHA1	X	-.004	3
13	MP ALPHA3	X	-.015	3

Member Point Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.018	5.5
2	MP ALPHA2	Y	.018	.5
3	MP ALPHA2	X	-.031	5.5
4	MP ALPHA2	X	-.031	.5
5	MP ALPHA4	Y	.013	5.917
6	MP ALPHA4	Y	.013	2.083
7	MP ALPHA4	X	-.022	5.917
8	MP ALPHA4	X	-.022	2.083
9	MP ALPHA3	Y	.014	4.917
10	MP ALPHA3	Y	.014	1.083
11	MP ALPHA3	X	-.024	4.917
12	MP ALPHA3	X	-.024	1.083
13	MP ALPHA1	Y	.005	4.5
14	MP ALPHA1	Y	.005	1.5
15	MP ALPHA1	X	-.008	4.5
16	MP ALPHA1	X	-.008	1.5
17	MP ALPHA2	Y	.004	3
18	MP ALPHA2	X	-.007	3
19	MP ALPHA4	Y	.005	3
20	MP ALPHA4	X	-.009	3
21	MP ALPHA3	Y	.004	3
22	MP ALPHA3	X	-.006	3
23	MP ALPHA1	Y	.002	3
24	MP ALPHA1	X	-.003	3
25	MP ALPHA3	Y	.007	3
26	MP ALPHA3	X	-.013	3

Member Point Loads (BLC 33 : Ice Wind Load (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.045	5.5
2	MP ALPHA2	Y	.045	.5
3	MP ALPHA2	X	-.026	5.5
4	MP ALPHA2	X	-.026	.5
5	MP ALPHA4	Y	.029	5.917
6	MP ALPHA4	Y	.029	2.083
7	MP ALPHA4	X	-.017	5.917
8	MP ALPHA4	X	-.017	2.083
9	MP ALPHA3	Y	.035	4.917
10	MP ALPHA3	Y	.035	1.083
11	MP ALPHA3	X	-.02	4.917
12	MP ALPHA3	X	-.02	1.083
13	MP ALPHA1	Y	.011	4.5
14	MP ALPHA1	Y	.011	1.5
15	MP ALPHA1	X	-.007	4.5
16	MP ALPHA1	X	-.007	1.5
17	MP ALPHA2	Y	.008	3
18	MP ALPHA2	X	-.005	3
19	MP ALPHA4	Y	.011	3
20	MP ALPHA4	X	-.006	3
21	MP ALPHA3	Y	.008	3
22	MP ALPHA3	X	-.004	3
23	MP ALPHA1	Y	.004	3
24	MP ALPHA1	X	-.002	3
25	MP ALPHA3	Y	.013	3
26	MP ALPHA3	X	-.007	3

Member Point Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.061	5.5
2	MP ALPHA2	Y	.061	.5
3	MP ALPHA4	Y	.038	5.917
4	MP ALPHA4	Y	.038	2.083
5	MP ALPHA3	Y	.047	4.917
6	MP ALPHA3	Y	.047	1.083
7	MP ALPHA1	Y	.015	4.5
8	MP ALPHA1	Y	.015	1.5
9	MP ALPHA2	Y	.01	3
10	MP ALPHA4	Y	.014	3
11	MP ALPHA3	Y	.01	3
12	MP ALPHA1	Y	.005	3
13	MP ALPHA3	Y	.015	3

Member Point Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.045	5.5
2	MP ALPHA2	Y	.045	.5
3	MP ALPHA2	X	.026	5.5
4	MP ALPHA2	X	.026	.5
5	MP ALPHA4	Y	.029	5.917
6	MP ALPHA4	Y	.029	2.083
7	MP ALPHA4	X	.017	5.917
8	MP ALPHA4	X	.017	2.083
9	MP ALPHA3	Y	.035	4.917
10	MP ALPHA3	Y	.035	1.083
11	MP ALPHA3	X	.02	4.917

Member Point Loads (BLC 35 : Ice Wind Load (210)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	MP ALPHA3	X	.02	1.083
13	MP ALPHA1	Y	.011	4.5
14	MP ALPHA1	Y	.011	1.5
15	MP ALPHA1	X	.007	4.5
16	MP ALPHA1	X	.007	1.5
17	MP ALPHA2	Y	.008	3
18	MP ALPHA2	X	.005	3
19	MP ALPHA4	Y	.011	3
20	MP ALPHA4	X	.006	3
21	MP ALPHA3	Y	.008	3
22	MP ALPHA3	X	.004	3
23	MP ALPHA1	Y	.004	3
24	MP ALPHA1	X	.002	3
25	MP ALPHA3	Y	.013	3
26	MP ALPHA3	X	.007	3

Member Point Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	.018	5.5
2	MP ALPHA2	Y	.018	.5
3	MP ALPHA2	X	.031	5.5
4	MP ALPHA2	X	.031	.5
5	MP ALPHA4	Y	.013	5.917
6	MP ALPHA4	Y	.013	2.083
7	MP ALPHA4	X	.022	5.917
8	MP ALPHA4	X	.022	2.083
9	MP ALPHA3	Y	.014	4.917
10	MP ALPHA3	Y	.014	1.083
11	MP ALPHA3	X	.024	4.917
12	MP ALPHA3	X	.024	1.083
13	MP ALPHA1	Y	.005	4.5
14	MP ALPHA1	Y	.005	1.5
15	MP ALPHA1	X	.008	4.5
16	MP ALPHA1	X	.008	1.5
17	MP ALPHA2	Y	.004	3
18	MP ALPHA2	X	.007	3
19	MP ALPHA4	Y	.005	3
20	MP ALPHA4	X	.009	3
21	MP ALPHA3	Y	.004	3
22	MP ALPHA3	X	.006	3
23	MP ALPHA1	Y	.002	3
24	MP ALPHA1	X	.003	3
25	MP ALPHA3	Y	.007	3
26	MP ALPHA3	X	.013	3

Member Point Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	.027	5.5
2	MP ALPHA2	X	.027	.5
3	MP ALPHA4	X	.022	5.917
4	MP ALPHA4	X	.022	2.083
5	MP ALPHA3	X	.021	4.917
6	MP ALPHA3	X	.021	1.083
7	MP ALPHA1	X	.008	4.5
8	MP ALPHA1	X	.008	1.5
9	MP ALPHA2	X	.008	3

Member Point Loads (BLC 37 : Ice Wind Load (270)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	MP ALPHA4	X	.009	3
11	MP ALPHA3	X	.006	3
12	MP ALPHA1	X	.004	3
13	MP ALPHA3	X	.015	3

Member Point Loads (BLC 38 : Ice Wind Load (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.018	5.5
2	MP ALPHA2	Y	-.018	.5
3	MP ALPHA2	X	.031	5.5
4	MP ALPHA2	X	.031	.5
5	MP ALPHA4	Y	-.013	5.917
6	MP ALPHA4	Y	-.013	2.083
7	MP ALPHA4	X	.022	5.917
8	MP ALPHA4	X	.022	2.083
9	MP ALPHA3	Y	-.014	4.917
10	MP ALPHA3	Y	-.014	1.083
11	MP ALPHA3	X	.024	4.917
12	MP ALPHA3	X	.024	1.083
13	MP ALPHA1	Y	-.005	4.5
14	MP ALPHA1	Y	-.005	1.5
15	MP ALPHA1	X	.008	4.5
16	MP ALPHA1	X	.008	1.5
17	MP ALPHA2	Y	-.004	3
18	MP ALPHA2	X	.007	3
19	MP ALPHA4	Y	-.005	3
20	MP ALPHA4	X	.009	3
21	MP ALPHA3	Y	-.004	3
22	MP ALPHA3	X	.006	3
23	MP ALPHA1	Y	-.002	3
24	MP ALPHA1	X	.003	3
25	MP ALPHA3	Y	-.007	3
26	MP ALPHA3	X	.013	3

Member Point Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.045	5.5
2	MP ALPHA2	Y	-.045	.5
3	MP ALPHA2	X	.026	5.5
4	MP ALPHA2	X	.026	.5
5	MP ALPHA4	Y	-.029	5.917
6	MP ALPHA4	Y	-.029	2.083
7	MP ALPHA4	X	.017	5.917
8	MP ALPHA4	X	.017	2.083
9	MP ALPHA3	Y	-.035	4.917
10	MP ALPHA3	Y	-.035	1.083
11	MP ALPHA3	X	.02	4.917
12	MP ALPHA3	X	.02	1.083
13	MP ALPHA1	Y	-.011	4.5
14	MP ALPHA1	Y	-.011	1.5
15	MP ALPHA1	X	.007	4.5
16	MP ALPHA1	X	.007	1.5
17	MP ALPHA2	Y	-.008	3
18	MP ALPHA2	X	.005	3
19	MP ALPHA4	Y	-.011	3
20	MP ALPHA4	X	.006	3

Member Point Loads (BLC 39 : Ice Wind Load (330)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
21	MP ALPHA3	Y	-.008	3
22	MP ALPHA3	X	.004	3
23	MP ALPHA1	Y	-.004	3
24	MP ALPHA1	X	.002	3
25	MP ALPHA3	Y	-.013	3
26	MP ALPHA3	X	.007	3

Member Point Loads (BLC 40 : Earthquake (x-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	X	-.006	5.5
2	MP ALPHA2	X	-.006	.5
3	MP ALPHA4	X	-.003	5.917
4	MP ALPHA4	X	-.003	2.083
5	MP ALPHA3	X	-.004	4.917
6	MP ALPHA3	X	-.004	1.083
7	MP ALPHA1	X	-.002	4.5
8	MP ALPHA1	X	-.002	1.5
9	MP ALPHA2	X	-.008	3
10	MP ALPHA4	X	-.006	3
11	MP ALPHA3	X	-.007	3
12	MP ALPHA1	X	-.001	3
13	MP ALPHA3	X	-.004	3

Member Point Loads (BLC 41 : Earthquake (y-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Y	-.006	5.5
2	MP ALPHA2	Y	-.006	.5
3	MP ALPHA4	Y	-.003	5.917
4	MP ALPHA4	Y	-.003	2.083
5	MP ALPHA3	Y	-.004	4.917
6	MP ALPHA3	Y	-.004	1.083
7	MP ALPHA1	Y	-.002	4.5
8	MP ALPHA1	Y	-.002	1.5
9	MP ALPHA2	Y	-.008	3
10	MP ALPHA4	Y	-.006	3
11	MP ALPHA3	Y	-.007	3
12	MP ALPHA1	Y	-.001	3
13	MP ALPHA3	Y	-.004	3

Member Point Loads (BLC 42 : Earthquake (z-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA2	Z	-.002	5.5
2	MP ALPHA2	Z	-.002	.5
3	MP ALPHA4	Z	-.001	5.917
4	MP ALPHA4	Z	-.001	2.083
5	MP ALPHA3	Z	-.001	4.917
6	MP ALPHA3	Z	-.001	1.083
7	MP ALPHA1	Z	-.000791	4.5
8	MP ALPHA1	Z	-.000791	1.5
9	MP ALPHA2	Z	-.003	3
10	MP ALPHA4	Z	-.002	3
11	MP ALPHA3	Z	-.003	3
12	MP ALPHA1	Z	-.000479	3
13	MP ALPHA3	Z	-.001	3

Member Distributed Loads (BLC 2 : Wind Load (0))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.01	-.01	0	0
2	TOPFACE	PY	-.01	-.01	0	0
3	TC1	PY	-.007	-.007	0	0
4	TC2	PY	-.007	-.007	0	0
5	SUPPIPE	PY	-.003	-.003	0	0
6	MP ALPHA1	PY	-.009	-.009	0	0
7	MP ALPHA2	PY	-.009	-.009	0	0
8	MP ALPHA3	PY	-.009	-.009	0	0
9	MP ALPHA4	PY	-.009	-.009	0	0
10	TB PIPE	PY	-.009	-.009	0	0
11	TIEBACK	PY	-.003	-.003	0	0

Member Distributed Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.009	-.009	0	0
2	TOPFACE	PY	-.009	-.009	0	0
3	TC1	PY	-.006	-.006	0	0
4	TC2	PY	-.006	-.006	0	0
5	SUPPIPE	PY	-.003	-.003	0	0
6	MP ALPHA1	PY	-.008	-.008	0	0
7	MP ALPHA2	PY	-.008	-.008	0	0
8	MP ALPHA3	PY	-.008	-.008	0	0
9	MP ALPHA4	PY	-.008	-.008	0	0
10	TB PIPE	PY	-.008	-.008	0	0
11	TIEBACK	PY	-.003	-.003	0	0
12	BOTTOMFACE	PX	-.005	-.005	0	0
13	TOPFACE	PX	-.005	-.005	0	0
14	TC1	PX	-.004	-.004	0	0
15	TC2	PX	-.004	-.004	0	0
16	SUPPIPE	PX	-.002	-.002	0	0
17	MP ALPHA1	PX	-.004	-.004	0	0
18	MP ALPHA2	PX	-.004	-.004	0	0
19	MP ALPHA3	PX	-.004	-.004	0	0
20	MP ALPHA4	PX	-.004	-.004	0	0
21	TB PIPE	PX	-.004	-.004	0	0

Member Distributed Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.005	-.005	0	0
2	TOPFACE	PY	-.005	-.005	0	0
3	TC1	PY	-.004	-.004	0	0
4	TC2	PY	-.004	-.004	0	0
5	SUPPIPE	PY	-.002	-.002	0	0
6	MP ALPHA1	PY	-.004	-.004	0	0
7	MP ALPHA2	PY	-.004	-.004	0	0
8	MP ALPHA3	PY	-.004	-.004	0	0
9	MP ALPHA4	PY	-.004	-.004	0	0
10	TB PIPE	PY	-.004	-.004	0	0
11	TIEBACK	PY	-.002	-.002	0	0
12	BOTTOMFACE	PX	-.009	-.009	0	0
13	TOPFACE	PX	-.009	-.009	0	0
14	TC1	PX	-.006	-.006	0	0
15	TC2	PX	-.006	-.006	0	0
16	SUPPIPE	PX	-.003	-.003	0	0
17	MP ALPHA1	PX	-.008	-.008	0	0

Member Distributed Loads (BLC 5 : Wind Load (60)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
18	MP ALPHA2	PX	-.008	-.008	0	0
19	MP ALPHA3	PX	-.008	-.008	0	0
20	MP ALPHA4	PX	-.008	-.008	0	0
21	TB PIPE	PX	-.008	-.008	0	0

Member Distributed Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PX	-.003	-.003	0	0
2	TOPFACE	PX	-.003	-.003	0	0
3	TC1	PX	-.007	-.007	0	0
4	TC2	PX	-.007	-.007	0	0
5	SUPPIPE	PX	-.003	-.003	0	0
6	MP ALPHA1	PX	-.009	-.009	0	0
7	MP ALPHA2	PX	-.009	-.009	0	0
8	MP ALPHA3	PX	-.009	-.009	0	0
9	MP ALPHA4	PX	-.009	-.009	0	0
10	TB PIPE	PX	-.009	-.009	0	0
11	TIEBACK	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.005	.005	0	0
2	TOPFACE	PY	.005	.005	0	0
3	TC1	PY	.004	.004	0	0
4	TC2	PY	.004	.004	0	0
5	SUPPIPE	PY	.002	.002	0	0
6	MP ALPHA1	PY	.004	.004	0	0
7	MP ALPHA2	PY	.004	.004	0	0
8	MP ALPHA3	PY	.004	.004	0	0
9	MP ALPHA4	PY	.004	.004	0	0
10	TB PIPE	PY	.004	.004	0	0
11	TIEBACK	PY	.002	.002	0	0
12	BOTTOMFACE	PX	-.009	-.009	0	0
13	TOPFACE	PX	-.009	-.009	0	0
14	TC1	PX	-.006	-.006	0	0
15	TC2	PX	-.006	-.006	0	0
16	SUPPIPE	PX	-.003	-.003	0	0
17	MP ALPHA1	PX	-.008	-.008	0	0
18	MP ALPHA2	PX	-.008	-.008	0	0
19	MP ALPHA3	PX	-.008	-.008	0	0
20	MP ALPHA4	PX	-.008	-.008	0	0
21	TB PIPE	PX	-.008	-.008	0	0

Member Distributed Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.009	.009	0	0
2	TOPFACE	PY	.009	.009	0	0
3	TC1	PY	.006	.006	0	0
4	TC2	PY	.006	.006	0	0
5	SUPPIPE	PY	.003	.003	0	0
6	MP ALPHA1	PY	.008	.008	0	0
7	MP ALPHA2	PY	.008	.008	0	0
8	MP ALPHA3	PY	.008	.008	0	0
9	MP ALPHA4	PY	.008	.008	0	0
10	TB PIPE	PY	.008	.008	0	0

Member Distributed Loads (BLC 8 : Wind Load (150)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
11	TIEBACK	PY	.003	.003	0	0
12	BOTTOMFACE	PX	-.005	-.005	0	0
13	TOPFACE	PX	-.005	-.005	0	0
14	TC1	PX	-.004	-.004	0	0
15	TC2	PX	-.004	-.004	0	0
16	SUPPIPE	PX	-.002	-.002	0	0
17	MP ALPHA1	PX	-.004	-.004	0	0
18	MP ALPHA2	PX	-.004	-.004	0	0
19	MP ALPHA3	PX	-.004	-.004	0	0
20	MP ALPHA4	PX	-.004	-.004	0	0
21	TB PIPE	PX	-.004	-.004	0	0

Member Distributed Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.01	.01	0	0
2	TOPFACE	PY	.01	.01	0	0
3	TC1	PY	.007	.007	0	0
4	TC2	PY	.007	.007	0	0
5	SUPPIPE	PY	.003	.003	0	0
6	MP ALPHA1	PY	.009	.009	0	0
7	MP ALPHA2	PY	.009	.009	0	0
8	MP ALPHA3	PY	.009	.009	0	0
9	MP ALPHA4	PY	.009	.009	0	0
10	TB PIPE	PY	.009	.009	0	0
11	TIEBACK	PY	.003	.003	0	0

Member Distributed Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.009	.009	0	0
2	TOPFACE	PY	.009	.009	0	0
3	TC1	PY	.006	.006	0	0
4	TC2	PY	.006	.006	0	0
5	SUPPIPE	PY	.003	.003	0	0
6	MP ALPHA1	PY	.008	.008	0	0
7	MP ALPHA2	PY	.008	.008	0	0
8	MP ALPHA3	PY	.008	.008	0	0
9	MP ALPHA4	PY	.008	.008	0	0
10	TB PIPE	PY	.008	.008	0	0
11	TIEBACK	PY	.003	.003	0	0
12	BOTTOMFACE	PX	.005	.005	0	0
13	TOPFACE	PX	.005	.005	0	0
14	TC1	PX	.004	.004	0	0
15	TC2	PX	.004	.004	0	0
16	SUPPIPE	PX	.002	.002	0	0
17	MP ALPHA1	PX	.004	.004	0	0
18	MP ALPHA2	PX	.004	.004	0	0
19	MP ALPHA3	PX	.004	.004	0	0
20	MP ALPHA4	PX	.004	.004	0	0
21	TB PIPE	PX	.004	.004	0	0

Member Distributed Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.005	.005	0	0
2	TOPFACE	PY	.005	.005	0	0
3	TC1	PY	.004	.004	0	0

Member Distributed Loads (BLC 11 : Wind Load (240)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
4	TC2	PY	.004	.004	0	0
5	SUPPIPE	PY	.002	.002	0	0
6	MP ALPHA1	PY	.004	.004	0	0
7	MP ALPHA2	PY	.004	.004	0	0
8	MP ALPHA3	PY	.004	.004	0	0
9	MP ALPHA4	PY	.004	.004	0	0
10	TB PIPE	PY	.004	.004	0	0
11	TIEBACK	PY	.002	.002	0	0
12	BOTTOMFACE	PX	.009	.009	0	0
13	TOPFACE	PX	.009	.009	0	0
14	TC1	PX	.006	.006	0	0
15	TC2	PX	.006	.006	0	0
16	SUPPIPE	PX	.003	.003	0	0
17	MP ALPHA1	PX	.008	.008	0	0
18	MP ALPHA2	PX	.008	.008	0	0
19	MP ALPHA3	PX	.008	.008	0	0
20	MP ALPHA4	PX	.008	.008	0	0
21	TB PIPE	PX	.008	.008	0	0

Member Distributed Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PX	.003	.003	0	0
2	TOPFACE	PX	.003	.003	0	0
3	TC1	PX	.007	.007	0	0
4	TC2	PX	.007	.007	0	0
5	SUPPIPE	PX	.003	.003	0	0
6	MP ALPHA1	PX	.009	.009	0	0
7	MP ALPHA2	PX	.009	.009	0	0
8	MP ALPHA3	PX	.009	.009	0	0
9	MP ALPHA4	PX	.009	.009	0	0
10	TB PIPE	PX	.009	.009	0	0
11	TIEBACK	PX	.003	.003	0	0

Member Distributed Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.005	-.005	0	0
2	TOPFACE	PY	-.005	-.005	0	0
3	TC1	PY	-.004	-.004	0	0
4	TC2	PY	-.004	-.004	0	0
5	SUPPIPE	PY	-.002	-.002	0	0
6	MP ALPHA1	PY	-.004	-.004	0	0
7	MP ALPHA2	PY	-.004	-.004	0	0
8	MP ALPHA3	PY	-.004	-.004	0	0
9	MP ALPHA4	PY	-.004	-.004	0	0
10	TB PIPE	PY	-.004	-.004	0	0
11	TIEBACK	PY	-.002	-.002	0	0
12	BOTTOMFACE	PX	.009	.009	0	0
13	TOPFACE	PX	.009	.009	0	0
14	TC1	PX	.006	.006	0	0
15	TC2	PX	.006	.006	0	0
16	SUPPIPE	PX	.003	.003	0	0
17	MP ALPHA1	PX	.008	.008	0	0
18	MP ALPHA2	PX	.008	.008	0	0
19	MP ALPHA3	PX	.008	.008	0	0
20	MP ALPHA4	PX	.008	.008	0	0
21	TB PIPE	PX	.008	.008	0	0

Member Distributed Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.009	-.009	0	0
2	TOPFACE	PY	-.009	-.009	0	0
3	TC1	PY	-.006	-.006	0	0
4	TC2	PY	-.006	-.006	0	0
5	SUPPIPE	PY	-.003	-.003	0	0
6	MP ALPHA1	PY	-.008	-.008	0	0
7	MP ALPHA2	PY	-.008	-.008	0	0
8	MP ALPHA3	PY	-.008	-.008	0	0
9	MP ALPHA4	PY	-.008	-.008	0	0
10	TB PIPE	PY	-.008	-.008	0	0
11	TIEBACK	PY	-.003	-.003	0	0
12	BOTTOMFACE	PX	.005	.005	0	0
13	TOPFACE	PX	.005	.005	0	0
14	TC1	PX	.004	.004	0	0
15	TC2	PX	.004	.004	0	0
16	SUPPIPE	PX	.002	.002	0	0
17	MP ALPHA1	PX	.004	.004	0	0
18	MP ALPHA2	PX	.004	.004	0	0
19	MP ALPHA3	PX	.004	.004	0	0
20	MP ALPHA4	PX	.004	.004	0	0
21	TB PIPE	PX	.004	.004	0	0

Member Distributed Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	Z	-.006	-.006	0	0
2	TOPFACE	Z	-.006	-.006	0	0
3	TC1	Z	-.01	-.01	0	0
4	TC2	Z	-.01	-.01	0	0
5	SUPPIPE	Z	-.005	-.005	0	0
6	MP ALPHA1	Z	-.005	-.005	0	0
7	MP ALPHA2	Z	-.005	-.005	0	0
8	MP ALPHA3	Z	-.005	-.005	0	0
9	MP ALPHA4	Z	-.005	-.005	0	0
10	TB PIPE	Z	-.005	-.005	0	0
11	TIEBACK	Z	-.006	-.006	0	0

Member Distributed Loads (BLC 28 : Ice Wind Load (0))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.003	-.003	0	0
2	TOPFACE	PY	-.003	-.003	0	0
3	TC1	PY	-.002	-.002	0	0
4	TC2	PY	-.002	-.002	0	0
5	SUPPIPE	PY	-.001	-.001	0	0
6	MP ALPHA1	PY	-.003	-.003	0	0
7	MP ALPHA2	PY	-.003	-.003	0	0
8	MP ALPHA3	PY	-.003	-.003	0	0
9	MP ALPHA4	PY	-.003	-.003	0	0
10	TB PIPE	PY	-.003	-.003	0	0
11	TIEBACK	PY	-.001	-.001	0	0

Member Distributed Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.003	-.003	0	0
2	TOPFACE	PY	-.003	-.003	0	0
3	TC1	PY	-.002	-.002	0	0

Member Distributed Loads (BLC 29 : Ice Wind Load (30)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
4	TC2	PY	-.002	-.002	0	0
5	SUPPIPE	PY	-.000866	-.000866	0	0
6	MP ALPHA1	PY	-.003	-.003	0	0
7	MP ALPHA2	PY	-.003	-.003	0	0
8	MP ALPHA3	PY	-.003	-.003	0	0
9	MP ALPHA4	PY	-.003	-.003	0	0
10	TB PIPE	PY	-.003	-.003	0	0
11	TIEBACK	PY	-.000866	-.000866	0	0
12	BOTTOMFACE	PX	-.002	-.002	0	0
13	TOPFACE	PX	-.002	-.002	0	0
14	TC1	PX	-.001	-.001	0	0
15	TC2	PX	-.001	-.001	0	0
16	SUPPIPE	PX	-.0005	-.0005	0	0
17	MP ALPHA1	PX	-.002	-.002	0	0
18	MP ALPHA2	PX	-.002	-.002	0	0
19	MP ALPHA3	PX	-.002	-.002	0	0
20	MP ALPHA4	PX	-.002	-.002	0	0
21	TB PIPE	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 30 : Ice Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.002	-.002	0	0
2	TOPFACE	PY	-.002	-.002	0	0
3	TC1	PY	-.001	-.001	0	0
4	TC2	PY	-.001	-.001	0	0
5	SUPPIPE	PY	-.0005	-.0005	0	0
6	MP ALPHA1	PY	-.002	-.002	0	0
7	MP ALPHA2	PY	-.002	-.002	0	0
8	MP ALPHA3	PY	-.002	-.002	0	0
9	MP ALPHA4	PY	-.002	-.002	0	0
10	TB PIPE	PY	-.002	-.002	0	0
11	TIEBACK	PY	-.0005	-.0005	0	0
12	BOTTOMFACE	PX	-.003	-.003	0	0
13	TOPFACE	PX	-.003	-.003	0	0
14	TC1	PX	-.002	-.002	0	0
15	TC2	PX	-.002	-.002	0	0
16	SUPPIPE	PX	-.000866	-.000866	0	0
17	MP ALPHA1	PX	-.003	-.003	0	0
18	MP ALPHA2	PX	-.003	-.003	0	0
19	MP ALPHA3	PX	-.003	-.003	0	0
20	MP ALPHA4	PX	-.003	-.003	0	0
21	TB PIPE	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PX	-.001	-.001	0	0
2	TOPFACE	PX	-.001	-.001	0	0
3	TC1	PX	-.002	-.002	0	0
4	TC2	PX	-.002	-.002	0	0
5	SUPPIPE	PX	-.001	-.001	0	0
6	MP ALPHA1	PX	-.003	-.003	0	0
7	MP ALPHA2	PX	-.003	-.003	0	0
8	MP ALPHA3	PX	-.003	-.003	0	0
9	MP ALPHA4	PX	-.003	-.003	0	0
10	TB PIPE	PX	-.003	-.003	0	0
11	TIEBACK	PX	-.001	-.001	0	0

Member Distributed Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.002	.002	0	0
2	TOPFACE	PY	.002	.002	0	0
3	TC1	PY	.001	.001	0	0
4	TC2	PY	.001	.001	0	0
5	SUPPIPE	PY	.0005	.0005	0	0
6	MP ALPHA1	PY	.002	.002	0	0
7	MP ALPHA2	PY	.002	.002	0	0
8	MP ALPHA3	PY	.002	.002	0	0
9	MP ALPHA4	PY	.002	.002	0	0
10	TB PIPE	PY	.002	.002	0	0
11	TIEBACK	PY	.0005	.0005	0	0
12	BOTTOMFACE	PX	-.003	-.003	0	0
13	TOPFACE	PX	-.003	-.003	0	0
14	TC1	PX	-.002	-.002	0	0
15	TC2	PX	-.002	-.002	0	0
16	SUPPIPE	PX	-.000866	-.000866	0	0
17	MP ALPHA1	PX	-.003	-.003	0	0
18	MP ALPHA2	PX	-.003	-.003	0	0
19	MP ALPHA3	PX	-.003	-.003	0	0
20	MP ALPHA4	PX	-.003	-.003	0	0
21	TB PIPE	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 33 : Ice Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.003	.003	0	0
2	TOPFACE	PY	.003	.003	0	0
3	TC1	PY	.002	.002	0	0
4	TC2	PY	.002	.002	0	0
5	SUPPIPE	PY	.000866	.000866	0	0
6	MP ALPHA1	PY	.003	.003	0	0
7	MP ALPHA2	PY	.003	.003	0	0
8	MP ALPHA3	PY	.003	.003	0	0
9	MP ALPHA4	PY	.003	.003	0	0
10	TB PIPE	PY	.003	.003	0	0
11	TIEBACK	PY	.000866	.000866	0	0
12	BOTTOMFACE	PX	-.002	-.002	0	0
13	TOPFACE	PX	-.002	-.002	0	0
14	TC1	PX	-.001	-.001	0	0
15	TC2	PX	-.001	-.001	0	0
16	SUPPIPE	PX	-.0005	-.0005	0	0
17	MP ALPHA1	PX	-.002	-.002	0	0
18	MP ALPHA2	PX	-.002	-.002	0	0
19	MP ALPHA3	PX	-.002	-.002	0	0
20	MP ALPHA4	PX	-.002	-.002	0	0
21	TB PIPE	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.003	.003	0	0
2	TOPFACE	PY	.003	.003	0	0
3	TC1	PY	.002	.002	0	0
4	TC2	PY	.002	.002	0	0
5	SUPPIPE	PY	.001	.001	0	0
6	MP ALPHA1	PY	.003	.003	0	0
7	MP ALPHA2	PY	.003	.003	0	0
8	MP ALPHA3	PY	.003	.003	0	0

Member Distributed Loads (BLC 34 : Ice Wind Load (180)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
9	MP ALPHA4	PY	.003	.003	0	0
10	TB PIPE	PY	.003	.003	0	0
11	TIEBACK	PY	.001	.001	0	0

Member Distributed Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.003	.003	0	0
2	TOPFACE	PY	.003	.003	0	0
3	TC1	PY	.002	.002	0	0
4	TC2	PY	.002	.002	0	0
5	SUPPIPE	PY	.000866	.000866	0	0
6	MP ALPHA1	PY	.003	.003	0	0
7	MP ALPHA2	PY	.003	.003	0	0
8	MP ALPHA3	PY	.003	.003	0	0
9	MP ALPHA4	PY	.003	.003	0	0
10	TB PIPE	PY	.003	.003	0	0
11	TIEBACK	PY	.000866	.000866	0	0
12	BOTTOMFACE	PX	.002	.002	0	0
13	TOPFACE	PX	.002	.002	0	0
14	TC1	PX	.001	.001	0	0
15	TC2	PX	.001	.001	0	0
16	SUPPIPE	PX	.0005	.0005	0	0
17	MP ALPHA1	PX	.002	.002	0	0
18	MP ALPHA2	PX	.002	.002	0	0
19	MP ALPHA3	PX	.002	.002	0	0
20	MP ALPHA4	PX	.002	.002	0	0
21	TB PIPE	PX	.002	.002	0	0

Member Distributed Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	.002	.002	0	0
2	TOPFACE	PY	.002	.002	0	0
3	TC1	PY	.001	.001	0	0
4	TC2	PY	.001	.001	0	0
5	SUPPIPE	PY	.0005	.0005	0	0
6	MP ALPHA1	PY	.002	.002	0	0
7	MP ALPHA2	PY	.002	.002	0	0
8	MP ALPHA3	PY	.002	.002	0	0
9	MP ALPHA4	PY	.002	.002	0	0
10	TB PIPE	PY	.002	.002	0	0
11	TIEBACK	PY	.0005	.0005	0	0
12	BOTTOMFACE	PX	.003	.003	0	0
13	TOPFACE	PX	.003	.003	0	0
14	TC1	PX	.002	.002	0	0
15	TC2	PX	.002	.002	0	0
16	SUPPIPE	PX	.000866	.000866	0	0
17	MP ALPHA1	PX	.003	.003	0	0
18	MP ALPHA2	PX	.003	.003	0	0
19	MP ALPHA3	PX	.003	.003	0	0
20	MP ALPHA4	PX	.003	.003	0	0
21	TB PIPE	PX	.003	.003	0	0

Member Distributed Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PX	.001	.001	0	0

Member Distributed Loads (BLC 37 : Ice Wind Load (270)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
2	TOPFACE	PX	.001	.001	0	0
3	TC1	PX	.002	.002	0	0
4	TC2	PX	.002	.002	0	0
5	SUPPIPE	PX	.001	.001	0	0
6	MP ALPHA1	PX	.003	.003	0	0
7	MP ALPHA2	PX	.003	.003	0	0
8	MP ALPHA3	PX	.003	.003	0	0
9	MP ALPHA4	PX	.003	.003	0	0
10	TB PIPE	PX	.003	.003	0	0
11	TIEBACK	PX	.001	.001	0	0

Member Distributed Loads (BLC 38 : Ice Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.002	-.002	0	0
2	TOPFACE	PY	-.002	-.002	0	0
3	TC1	PY	-.001	-.001	0	0
4	TC2	PY	-.001	-.001	0	0
5	SUPPIPE	PY	-.0005	-.0005	0	0
6	MP ALPHA1	PY	-.002	-.002	0	0
7	MP ALPHA2	PY	-.002	-.002	0	0
8	MP ALPHA3	PY	-.002	-.002	0	0
9	MP ALPHA4	PY	-.002	-.002	0	0
10	TB PIPE	PY	-.002	-.002	0	0
11	TIEBACK	PY	-.0005	-.0005	0	0
12	BOTTOMFACE	PX	.003	.003	0	0
13	TOPFACE	PX	.003	.003	0	0
14	TC1	PX	.002	.002	0	0
15	TC2	PX	.002	.002	0	0
16	SUPPIPE	PX	.000866	.000866	0	0
17	MP ALPHA1	PX	.003	.003	0	0
18	MP ALPHA2	PX	.003	.003	0	0
19	MP ALPHA3	PX	.003	.003	0	0
20	MP ALPHA4	PX	.003	.003	0	0
21	TB PIPE	PX	.003	.003	0	0

Member Distributed Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
1	BOTTOMFACE	PY	-.003	-.003	0	0
2	TOPFACE	PY	-.003	-.003	0	0
3	TC1	PY	-.002	-.002	0	0
4	TC2	PY	-.002	-.002	0	0
5	SUPPIPE	PY	-.000866	-.000866	0	0
6	MP ALPHA1	PY	-.003	-.003	0	0
7	MP ALPHA2	PY	-.003	-.003	0	0
8	MP ALPHA3	PY	-.003	-.003	0	0
9	MP ALPHA4	PY	-.003	-.003	0	0
10	TB PIPE	PY	-.003	-.003	0	0
11	TIEBACK	PY	-.000866	-.000866	0	0
12	BOTTOMFACE	PX	.002	.002	0	0
13	TOPFACE	PX	.002	.002	0	0
14	TC1	PX	.001	.001	0	0
15	TC2	PX	.001	.001	0	0
16	SUPPIPE	PX	.0005	.0005	0	0
17	MP ALPHA1	PX	.002	.002	0	0
18	MP ALPHA2	PX	.002	.002	0	0
19	MP ALPHA3	PX	.002	.002	0	0

Member Distributed Loads (BLC 39 : Ice Wind Load (330)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,...	Start Location[ft,%]	End Location[ft,%]
20	MP ALPHA4	PX	.002	.002	0	0
21	TB PIPE	PX	.002	.002	0	0

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.973	10	1.273	2	1.168	15	.081	2	.627	25	0	41
2		min	-.66	26	-1.108	20	.443	35	-1	21	-.388	5	0	1
3	N7	max	.744	14	1.23	2	1.164	36	.045	20	.615	19	0	41
4		min	-.979	34	-1.411	20	.444	17	-.987	3	-.394	35	0	1
5	N53	max	.139	32	.299	32	.04	33	0	41	0	41	0	41
6		min	-.138	14	-.297	14	.017	14	0	1	0	1	0	1
7	Totals:	max	1.279	8	2.558	2	2.35	18						
8		min	-1.279	26	-2.558	20	1.012	35						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Live Load	DL					1			
2	Wind Load (0)	DL					13	11		
3	Dead Load	DL			-1.1		13			
4	Wind Load (30)	DL					26	21		
5	Wind Load (60)	DL					26	21		
6	Wind Load (90)	DL					13	11		
7	Wind Load (120)	DL					26	21		
8	Wind Load (150)	DL					26	21		
9	Wind Load (180)	DL					13	11		
10	Wind Load (210)	DL					26	21		
11	Wind Load (240)	DL					26	21		
12	Wind Load (270)	DL					13	11		
13	Wind Load (300)	DL					26	21		
14	Wind Load (330)	DL					26	21		
15	Maintanence (0)	DL					13			
16	Maintanence (30)	DL					26			
17	Maintanence (60)	DL					26			
18	Maintanence (90)	DL					13			
19	Maintanence (120)	DL					26			
20	Maintanence (150)	DL					26			
21	Maintanence (180)	DL					13			
22	Maintanence (210)	DL					26			
23	Maintanence (240)	DL					26			
24	Maintanence (270)	DL					13			
25	Maintanence (300)	DL					26			
26	Maintanence (330)	DL					26			
27	Ice Dead Load	DL					13	11		
28	Ice Wind Load (0)	DL					13	11		
29	Ice Wind Load (30)	DL					26	21		
30	Ice Wind Load (60)	DL					26	21		
31	Ice Wind Load (90)	DL					13	11		
32	Ice Wind Load (120)	DL					26	21		
33	Ice Wind Load (150)	DL					26	21		
34	Ice Wind Load (180)	DL					13	11		
35	Ice Wind Load (210)	DL					26	21		
36	Ice Wind Load (240)	DL					26	21		
37	Ice Wind Load (270)	DL					13	11		
38	Ice Wind Load (300)	DL					26	21		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
39	Ice Wind Load (330)	DL					26	21		
40	Earthquake (x-directi...	DL	-.124				13			
41	Earthquake (y-directi...	DL		-.124			13			
42	Earthquake (z-directi...	DL			-.05		13			

Load Combinations

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		3	1.4																		
2	1.2D + 1.0W(0)	Yes	Y		3	1.2	2	1																
3	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	28	1														
4	1.2D + 1.5L + 1.0Wl(0)	Yes	Y		3	1.2	1	1.5	15	1														
5	1.2D + 1.0W(30)	Yes	Y		3	1.2	4	1																
6	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	29	1														
7	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	16	1														
8	1.2D + 1.0W(60)	Yes	Y		3	1.2	5	1																
9	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	30	1														
10	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	17	1														
11	1.2D + 1.0W(90)	Yes	Y		3	1.2	6	1																
12	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	31	1														
13	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	18	1														
14	1.2D + 1.0W(120)	Yes	Y		3	1.2	7	1																
15	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	32	1														
16	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	19	1														
17	1.2D + 1.0W(150)	Yes	Y		3	1.2	8	1																
18	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	33	1														
19	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	20	1														
20	1.2D + 1.0W(180)	Yes	Y		3	1.2	9	1																
21	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	34	1														
22	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	21	1														
23	1.2D + 1.0W(210)	Yes	Y		3	1.2	10	1																
24	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	35	1														
25	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	22	1														
26	1.2D + 1.0W(240)	Yes	Y		3	1.2	11	1																
27	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	36	1														
28	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	23	1														
29	1.2D + 1.0W(270)	Yes	Y		3	1.2	12	1																
30	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	37	1														
31	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	24	1														
32	1.2D + 1.0W(300)	Yes	Y		3	1.2	13	1																
33	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	38	1														
34	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	25	1														
35	1.2D + 1.0W(330)	Yes	Y		3	1.2	14	1																
36	1.2D + 1.0Di + 1.0Wi(...	Yes	Y		3	1.2	27	1	39	1														
37	1.2D + 1.5L + 1.0Wl(...	Yes	Y		3	1.2	1	1.5	26	1														
38	1.2D + 1.0E(x) + 1.0E...	Yes	Y		3	1.2	40	1	42	1	1	1												
39	1.2D + 1.0E(y) + 1.0E...	Yes	Y		3	1.2	41	1	42	1	1	1												
40	1.2D - 1.0E(x) + 1.0E(...	Yes	Y		3	1.2	40	-1	42	1	1	1												
41	1.2D - 1.0E(y) + 1.0E(...	Yes	Y		3	1.2	41	-1	42	1	1	1												

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Lo...	LC	She...	Loc[ft]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	BOTTOMFACE	PIPE_2.5	.710	6.5	20	.160	6.5		20	13.46	50.7...	3.596	3.596	...	H1-...
2	TOPFACE	PIPE_2.5	.681	6.5	5	.114	6.5		2	13.46	50.7...	3.596	3.596	...	H1-...
3	MP ALPHA4	PIPE_2.0	.426	4.5	10	.083	3		19	20.8...	32.13	1.872	1.872	...	H1-...

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Lo...	LC	She...	Loc[ft]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
4	MP ALPHA3	PIPE_2.0	.395	4.5	7	.082	1.5		22	20.8...	32.13	1.872	1.872	...	H1-...
5	MP ALPHA2	PIPE_2.0	.391	2.5	20	.076	2.5		2	14.9...	32.13	1.872	1.872	...	H1-...
6	TB PIPE	PIPE_2.0	.335	4....	16	.075	2.771		19	17.8...	32.13	1.872	1.872	...	H1-...
7	MP ALPHA1	PIPE_2.0	.170	4.5	6	.032	1.5		6	20.8...	32.13	1.872	1.872	...	H1-...
8	SUPPIPE	PIPE_3.5	.142	3.75	22	.138	.281		34	72.51	78.75	7.954	7.954	...	H1-...
9	TIEBACK	PIPE_2.0	.043	3....	15	.004	0		30	16.0...	32.13	1.872	1.872	...	H1-...
10	TC1	L4X4X6	.000	.25	21	.000	.25	z	36	92.3...	92.6...	4.398	9.886	...	H2-1
11	TC2	L4X4X6	.000	.25	21	.000	.25	z	36	92.3...	92.6...	4.398	9.886	...	H2-1

APPENDIX D

Wind Speed Documentation

Hazards by Location

Search Information

Coordinates: 41.341856, -73.274522

Elevation: 587 ft

Timestamp: 2020-05-28T13:28:33.866Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	75 mph
MRI 25-Year	83 mph
MRI 50-Year	89 mph
MRI 100-Year	96 mph
Risk Category I	107 mph
Risk Category II	117 mph
Risk Category III	126 mph
Risk Category IV	⚠ 130 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	76 mph
MRI 25-Year	85 mph
MRI 50-Year	92 mph
MRI 100-Year	98 mph
Risk Category I	109 mph
Risk Category II	120 mph
Risk Category III-IV	129 mph

ASCE 7-05

ASCE 7-05 Wind Speed	103 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CTL02144

Project Type: AT&T LTE 5C

Monroe_Guinea Road
230 Guinea Road
Monroe, CT 06468

July 13, 2020

Fullerton Project Number: 2020.0182.0014

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**3.14 %**

July 13, 2020

Crown Castle on Behalf of AT&T
Attn: Anne Marie Zsamba, Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

Emissions Analysis for Site: **CTL02144 – Monroe_Guinea Road**

Fullerton Engineering Consultants, LLC ("Fullerton") was directed to analyze the proposed upgrades to the AT&T facility located at **230 Guinea Road, Monroe, CT**, for the purpose of determining whether the emissions from the proposed AT&T antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 MHz & 850 MHz bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the AT&T antenna facility located at **230 Guinea Road, Monroe, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves.

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	1	20
LTE	700 MHz (Band 12)	4	40
LTE / 5G NR	850 MHz	4	40
LTE	700 MHz (Band 14)	4	40
LTE	1900 MHz (PCS)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	230
A	2	CCI DMP65R-BU6D	230
A	3	CCI OPA65R-BU6D	230
A	4	CCI HPA-65R-BUU-H6	232
B	1	Powerwave 7770	230
B	2	CCI DMP65R-BU6D	230
B	3	CCI OPA65R-BU6D	230
B	4	CCI HPA-65R-BUU-H6	232
C	1	Powerwave 7770	230
C	2	CCI DMP65R-BU6D	230
C	3	CCI OPA65R-BU6D	230
C	4	CCI HPA-65R-BUU-H6	232

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

Cable losses were factored in the calculations for this site. For each **700 MHz** Remote Radio Unit (RRU) there was **0.18 dB** of cable loss calculated into the system gains / losses for this site. For each **850 MHz** Remote Radio Unit (RRU) there was **0.20 dB** of cable loss calculated into the system gains / losses for this site. For each **850 MHz** ground mounted radio there was **1.60 dB** of cable loss calculated into the system gains / losses for this site. For each **1900 MHz (PCS)** Remote Radio Unit (RRU) there was **0.32 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **10 feet** of **1/2"** coax for all Remote Radio Units (RRU) and **260 feet** of **1-5/8"** for all ground mounted radios.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	1	20	191.00	0.02
Antenna A2	CCI DMP65R-BU6D	700 MHz (Band 12) / 850 MHz	11.85 / 12.45	8	240	3,693.33	0.53
Antenna A3	CCI OPA65R-BU6D	700 MHz (Band 14)	11.85	4	160	2,518.37	0.39
Antenna A4	CCI HPA-65R-BUU-H6	1900 MHz (PCS)	15.95	4	160	5,849.52	0.41
						Sector A Composite MPE%	**1.35**
Antenna B1	Powerwave 7770	850 MHz	11.4	1	20	191.00	0.02
Antenna B2	CCI DMP65R-BU6D	700 MHz (Band 12) / 850 MHz	11.85 / 12.45	8	240	3,693.33	0.53
Antenna B3	CCI OPA65R-BU6D	700 MHz (Band 14)	11.85	4	160	2,518.37	0.39
Antenna B4	CCI HPA-65R-BUU-H6	1900 MHz (PCS)	15.95	4	160	5,849.52	0.41
						Sector B Composite MPE%	**1.35**
Antenna C1	Powerwave 7770	850 MHz	11.4	1	20	191.00	0.02
Antenna C2	CCI DMP65R-BU6D	700 MHz (Band 12) / 850 MHz	11.85 / 12.45	8	240	3,693.33	0.53
Antenna C3	CCI OPA65R-BU6D	700 MHz (Band 14)	11.85	4	160	2,518.37	0.39
Antenna C4	CCI HPA-65R-BUU-H6	1900 MHz (PCS)	15.95	4	160	5,849.52	0.41
						Sector C Composite MPE%	**1.35**

Table 3: AT&T *Emissions Levels*

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Per Sector Value	**1.35 %**
PageNet	0.20 %
RAW Mobile Data	0.01 %
Nextel	0.25 %
CL&P	0.09 %
Verizon Wireless	1.24 %
Site Total MPE %:	**3.14 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	1.35 %
AT&T Sector B Total:	1.35 %
AT&T Sector C Total:	1.35 %
Site Total:	3.14 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	1	191.00	230	0.14	850 MHz	567	0.02%
AT&T 700 MHz LTE (Band 12)	4	587.57	230	1.68	700 MHz	467	0.36%
AT&T 850 MHz LTE / 5G NR	4	335.76	230	0.96	850 MHz	567	0.17%
AT&T 700 MHz LTE (Band 14)	4	629.59	230	1.80	700 MHz	467	0.39%
AT&T 1900 MHz (PCS) LTE	4	1,462.38	232	4.12	1900 MHz (PCS)	1000	0.41%
						Total:	**1.35%**

Table 6: AT&T *Maximum Sector MPE Power Values*

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	1.35 %
Sector B:	1.35 %
Sector C:	1.35 %
AT&T Maximum Total (per sector):	1.35 %
Site Total:	3.14 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **3.14 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

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